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EDITORIAL

On July 25, 1955, Carl Gustav Jung will celebrate his 80th anniversary. His word association experiment, conducted and published 51 years ago, is widely known as are his contributions to the psychology of the unconscious and to psychotherapy. The *Journal of Projective Techniques* is proud to add its share to the anniversary celebration of this pioneer in the field of projective techniques.

Our September issue will contain a series of articles demonstrating not only that his initial contribution to projective techniques has remained alive throughout all these years, but also that his influence has enriched the work with some of the other leading techniques widely used in our field.

BRUNO KLOPFER

An Analysis of Twelve Longitudinal Rorschach Records of One Child

ROBERT M. ALLEN
University of Miami

In an earlier paper (1) the writer proposed that the longitudinal method of studying the development of a child has a great deal to offer in terms of revealing the maturational process. The paper conducted the child through the year from age two to three: from vague Rorschach productivity at two to more intelligible responsivity at three years. In one year growth was noted with expansion of the apperceptive mass.

The second paper (2) recorded the development in intellect and emotionality for the crucial period from three to five years of age. The arrival of a baby sister was manifested in a somewhat constricted protocol. However, as the family unit became more stable the responses showed closer reality ties (within the context of childhood fact-fantasy living), and the pervasive influence of everyday experiences such as television shows, bodily curiosity, and natural phenomena (rain and thunder showers). Characteristic modes of behaving began to emerge during this early period: resort to "magic key" (6) solutions for perplexing problems, extratensive manner of dealing with environmental stimuli, increasing conformity to social pressures, and a thriving effort to assimilate new experiences into his expanding apperceptive mass. This developmental process was not smooth. Growth followed an irregular path, but despite soft spots here and there progress was invariably toward intellectual and emotional adequacy with regard to life activities.

The writer has continued administering the Rorschach to his son, Jeff, every three months. Of the 20 protocols thus far obtained, the first eight are unscorable. The last 12, from age

TABLE I—Location, Determinants, and Content Distribution

Factors	Age											
	4-4	4-6	4-9	5-0	5-3	5-6	5-9	6-0	6-3	6-6	6-9	7-0
R	15	15	22	17	21	20	23	20	20	21	26	21
W%	46	40	27	34	39	15	22	25	25	24	19	19
D%	54	53	83	66	61	80	69	70	70	71	77	81
Dd+S%	....	7	....	....	....	5	9	5	5	5	4	....
M	1	....	....	....	1	1	2	1	1	1	1	1
FM	1	1	1	....	3	4+2	3	2+1	3+1	5	2+1	3+1
m	0+1	....	1	....	0+1	....	0+2	0+1	0+1	0+1	0+2	0+1
F	5	6	8	10	13	7	10	8	7	7	6	9
F%	33	40	36	58	64	35	43	40	35	30	23	42
F+%	40	100	87	90	76	85	80	88	71	100	100	100
C', k, K, Fc	2	....	....	1	0+2	0+1	0+1	....	....	....	1	....
FC'	....	1	2	....	0+1	2	2	....	0+1	1+2	2	1+2
FC	1	4	6	1	2	4	3	4	6	4	10+1	4+1
CF	4+1	....	1	....	1	1	0+1	....	1	0	1	1
C	1	3	3	3	1	1	3	5	2	3	3	2
FC:CF+C	1:5	4:3	6:4	1:3	2:2	4:2	3:3	4:5	6:3	4:3	10:4	4:3
M:Sum C	1:6	0:6.5	0:8.5	0:3.5	1:3.5	1:4.5	2:6	1:9.5	1:7	1:6.5	1:10.5	1:6
FM+m:Fc+c+C'	1:2	1:1	2:1	2:1	3:0	4:2	3:2	2:0	3:0	5:1	2:3	3:1
W:M	7:1	6:0	6:0	6:0	8:1	3:1	5:2	5:1	5:1	5:1	5:1	4:1
H	1	1	1	....	2	2	2	2	2	2	1	1
A	4	7	12	9	10	9	7	9	9	9	10	9
Ad	1	1	1	....	3	....	2	1	1	2	2	1
A%	33	53	60	52	64	45	39	50	50	47	46	47
P%	13	26	18	12	24	10	30	15	20	26	30	33
O	....	....	....	....	....	....	2	....	....	....	1	....

four years, three months (hereafter 4-3) to seven years, are summarized in Table I.

Analysis of Table I

Number of Responses (R): The total productivity is approximately the same since Jeff was 5-3. A survey of the individual percepts discloses an improvement in the quality of the responses, viz., language usage (phraseology and vocabulary) is much better, a closer tie to reality, better control over impulsivity (without sacrificing childish enthusiasm, energy, and expected brashness), and a rising sensitivity to social amenities. The trend from 4-3 to 7-0 years of age is toward increased productivity.

Location (W, D, Dd, S): The absolute numbers of W, D, Dd, and S will not be considered. Percentages are more appropriate for this analysis. The general tendency for the 33-month period is a reduction of W, an increase in D, and a gradual introduction of Dd; no S has appeared as yet in the free association stage. The approach below 5-3 is W!! D!. This shifts to D! W (Dd). Jeff's manner of approach to problems has been modified from a nonspecific "larger" view of situations and events to a more adequate analysis of a total view. He now takes account of those parts which are readily assimilable into his apperceptive mass and which he can handle more satisfactorily. The popular W and D portions of the blots are more frequently perceived and reported. Stated differently, early organizational processes are too-inclusive and not clearly defined. With maturation the later W percepts show a better integration between concept and blot area. The large detail portions of the blots are also organized more keenly (note increase in F+ per cent) resulting in more populars and two good original percepts. The most significant development is the child's beginning awareness of the minor essential details, Dd, for obtaining a more complete picture of events. This emerges at 5-6 and is in evidence at 7 years. Diminution of unclearly defined overviews and increase in the trend of seeing more facets of a situation are indicative of a more intelligent mode of coping with life. It may be hypothesized that this continued wholesome growth should lead to an optimal awareness of all aspects of situations from D! W (Dd) to W D Dd+S. It is interesting to note that the location distribution in these 12 records follows the general developmental picture specified by Halpern (5, pp. 21-24).

Determinants: Changes noted are not quite as dramatic as in the Location area, but perceptual modifications appear over the entire five-year period of observation.

Human movement (M) is not produced until 5-3, although human figure identification is made much earlier. The first moving human is a fairytale figure, in plate IV, "A giant, nothing else but a giant with a tree behind him." This percept still persists, at no time is the figure a threatening one. The usual popular concept in plate III has not emerged as M. These are still animals of one kind or another seen in action (FM). Apparently Jeff's responsiveness does not include fully matured ideas concerning a significant male adult, or perhaps his self-concept only peripherally defines his social role. At 7 years of age there is no reason to expect a finite definition of self beyond that which is emerging from childhood fantasy and identification. This does not imply that he is not cognizant of people and role-taking and role-playing. He simply has not crystallized his own part in life's drama—and why should he at this age?

The childhood self-concept, his present activity (as guided by puerile drives, immature imagination, and childish energy) is being properly channelized and developed. The pattern of life activities is positive, relaxed, and wholesome within the context of a growing, active, exploring,

and learning youngster who must, at the same time, comply with social pressures and deal with the concomitant personal pressures. That movement is reported is a reflection of his developing tolerance for change and a freer interpretation of the environment. This is within bounds as indicated by optimal F and F+ percentages. As physical energy and basic biological drives increase so does their expression in FM, a healthy stage in childhood life.

A growing awareness of a disturbing element in living is revealed by the persistent report of an "explosion" in plate IX and a lingering interest in "lightning and thunder" concepts. The latter has been reported for years and may represent an habitually elicited engram whose original portent no longer exists for him. The former report of an "explosion" to the pink of plate IX appears for the first time in the 6-0 protocol, a poor record because of Jeff's attempts at adjusting to a preschool program. This particular percept has become less violent since reported for the first time one year ago. This is the response at 6-0: "The red is an explosion, it blasts up." Note the reduction in upheaval as verbalized in the 7-0 record: "The bottom's an explosion, the pink." The feeling tone is subdued, thus mitigating the basic meaning of the concept. Halpern (5, p. 38) accounts for this phenomenon: " . . . explosions and fires are numerous in the records of the child from four and a half to six or eight. These reveal the pent up aggressive impulses that so strongly beset him at this age, as he experiences many frustrations in his struggles with authority and in his efforts to comply with environmental demands and win the love and approbation of those who are important to him."

The form value, as inferred from F and F+ percentages, has undergone changes. From years 4-0 to 5-0 F% is at the low optimal level, from 5-0 to 6-0 there is a marked increase in the use of pure form concomitant with the increase in FM. It would appear that Jeff must utilize outer control to offset internal promptings. He does not have sufficient maturity and resources for stability within himself to control these drives, therefore he resorts to external reality ties to help maintain dynamic homeostasis. From 5-9 to 7-0 there is a settling down to testing and using reality more adequately (F%, 42; F+%, 100). The movement is definitely toward a more intelligent approach to the organization and interpretation of stimuli in the life space as they symbolize problems to be met, assimilated, and solved with some degree of objectivity, yet not to the exclusion of emotionality. The latter is most certainly a characteristic of child life. The entire picture is one in which the youngster is feeling his way with newly conceived notions of right, wrong, good, and bad.

Responsiveness to the achromatic tones of the plates (c, k, K, and C') is gross at first; gradually finer discriminations are made. Early awareness of black as a color first appears at 4-6. The writer believes that this reflects Jeff's early gained color knowledge through experience with black crayon, pencil, black and white television, and other cognate contacts. Sensitivity to shading nuances enters at 5-3, and persists in a small degree. Thus, Jeff has learned to differentiate within the black-gray continuum and is beginning to appreciate subtle differences in the various phases of problems. At 7 years he is still more impressed by black as a color than by its tones. He will require further experience in order to understand subtleties in situations more completely.

The mode of his affective relationships with the external milieu, as measured by the FC:CF+C ratio, follows expectancy. After 5-3 FC slightly outnumbers CF+C; prior to that age consistent control over emotionality is not present. The post-infantile impulsiveness and poorly controlled af-

fectivity very slowly give way to a more realistically subdued manner of reacting to the environment. In Jeff this change has taken place: from the 4-3 FC:CF+C ratio of 1:5 to a ratio of 4:3 at 7 years. Despite the presence of emotional control he is still capable of childhood eagerness and temerity. However, the repressing influences in the social environment are affecting the child's responsiveness. In keeping with the basic personality structure, the *Erlebnistypus* (3, 4) is consistently extroversive. Moreover, this ratio must be considered in the light of Halpern's hypothesis regarding children's Rorschachs (5, p. 34): "In the M:C ratio there is, therefore, bound to be an emphasis on extroversion, and all studies of children agree on this point." She continues that it is "not entirely justified" to state that children respond "primarily to the demands of the environment." She explains this, " . . . the FM responses play much the same part for the child that the M responses do for the adult." Therefore, evaluating the Experience Balance in this manner modifies Jeff's extreme extroversiveness. Furthermore, the same tendency is maintained when M:Sum C and FM+m: Fc+c+C′ ratios are combined.

Like most children, Jeff's eyes are larger than his intellectual stomach. He sees much more than he can satisfactorily account for. Thus, the W:M ratio, reduced from 7:1 at 4-3 to 4:1 at 7 years, is still indicative of inadequate mental maturity for coping with all of the environmental stimuli that impinge upon him and to which he attempts to respond. The growth that has taken place is seen in the increased and improved F+ per cent, M+ replacing M−, FM+ over FM−, augmented and improved FC, and better organized F. These mirror growth toward intellectual and emotional maturity.

Content: Jeff is still in a child's world which is gradually becoming populated by people. While this concern with people is still in the fairy-folk and animal-for-human stage, he is capable of conforming to the cultural mores of youthful thinking — acceptable P percentage. Here, too, may be seen a gradual evolvement of populars characteristic of the adolescent and adult. He can go beyond routine thinking to produce good original responses at 5-9 and 6-9. This should not be surprising. A child can probe here and there without regard to limits since consequences are a secondary rather than a primary consideration to him. It is also heartening to know that childish eagerness can sometimes lead to something new.

The quantitative aspects of the last 12 records, from 4-9 to 7-0, disclose a movement toward unfolding intellectual and emotional maturity in Jeff. This is supported by the qualitative features of the progressing series of protocols. Two records illustrate the growth toward maturity. Only the free associations are given below; all plates are in the upright position throughout.

Four years, three months

I. 6″
1. I see a rat. W F— A
17″

II. 3″
1. I see some lightning banging into clouds. W CF, m N.
2. Black smoke, that's a fire, red is the lightning.
D C′F, CF Smoke, N. Fire
44″

Seven years, zero months

I. 2″
1. Two black birds on a tree.
W FC′, F+, A
11″

II. 1″
1. Lightning. D C N
2. Two elephants. D FM+, FC′ A
6″

III. 7″
1. I see some more lightning and two smokes and fire again.
W CF, C'F, N, Smoke
67″

IV. 4″
1. I see a big black man, walking, a Negro. W M+, FC' H
18″

V. 4″
1. Some more smoke. W C'F Smoke
8″

VI. 2″
1. Cat. D F—A
2. I don't know what this is, it l. l. a big dropping victrola. D F—Obj
27″

VII. ?″
1. Two lambs. D F+Ad
2. A church house far down. D F+Arch
26″

VIII. ?″
1. Two little lions running up the green. D FM A P
2. Blue, orange, and pink. W C_n Colors
22″

IX. 5″
1. Big lightning and thunder. W CF N
20″

X. 4″
1. Lots of lightning and thunder. D CF N
2. Long snakes, red snakes. D FC A
57″

III. 5″
1. It's monkeys. D FM+ A
2. A bow. D FC+ Clo P
23″

IV. 1″
1. It's a giant with a tree in the back. W M+ (H) P
10″

V. 1″
1. A lady bird. W FM+ A P
4″

VI. 1″
1. It's a cat, a giant cat skin. W F AObj
6″

VII. 2″
1. A church. D F+Arch
2. A tree. D FC' Pl
3. Two bunnies. D F+A
7″

VIII. 2″
1. It's a tree. D FC+Pl P
2. Red seals. D FC FM A
15″

IX. 3″
1. I see a tree. D CF Pl
2. Bottom's an explosion, pink. D C,m Expl
12″

X. 3″
1. Bunny. D F+Ad P
2. Pig. D FC A
3. Spider. D F+A P
4. Cow. D F+A
5. Leaf. D F+Pl
6. Mountain. D F N
14″

The evolution of Rorschach behavior from the preschool child to the first-grader is revealing. The protocols between 4-3 and 7-0 disclose this change; the same change is dramatically evident in the card-to-card comparison of the above two records. The seven-year protocol reveals shorter reaction time, less perseveration of the "magic key" solution to problems, differentiated use of form that is more closely tied to reality and better organized, quality and variety of content are improved, and the overall picture from 4-3 to 7-0 shows wholesome growth.

SUMMARY

This paper presents twelve protocols of the writer's son taken at three-

month intervals from four years, three months to seven years of age inclusive. A careful analysis of the quantitative and qualitative data that are made available by this longitudinal study of a growing boy clearly depicts the development of perceptual processes that reflect the intellectual and emotional maturation of the child.

It is felt that such studies could furnish more valid data for genetic theory building since it would result in both longitudinal and cross sectional information essential for raising inferences, checking hypotheses, and generating new questions regarding personality development.

References

1. Allen, R. M. A longitudinal study of six Rorschach protocols of a three-year-old child. *Child. Develpm.*, 1951, *22*, 61-69.

2. Allen, R. M. Continued longitudinal Rorschach study of a child for years three to five. *J. genet. Psychol.*, in press.

3. Allen, R. M. *Introduction to the Rorschach technique; Manual of administration and scoring.* New York: International Universities Press, 1953.

4. Allen, R. M. *Elements of Rorschach interpretation.* New York: International Universities Press, 1954.

5. Halpern, Florence. *A clinical approach to children's Rorschachs.* New York: Grune and Stratton, 1953.

6. Klopfer, B. and Margulies, H. Rorschach reactions in early childhood. *Rorschach Res. Exch.*, 1941, *5*, 1-23.

7. Singer, J., Meltzoff, J., and Goldman, G. D. Rorschach movement responses following motor inhibition and hyperactivity. *J. consult. Psychol.*, 1952, *16*, 359-364.

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Rorschach Populars In a Sample of Haitian Protocols [1]

ERIKA E. BOURGUIGNON and EMILY WESTERKAMM NETT

INTRODUCTION

Definition

Among various criteria for evaluating test protocols, Rorschach in his *Psychodiagnostik* (16) suggested the concept of the "vulgär" response, which he defined as one which occurs in one case out of three. For the purposes of individual interpretation, he saw the value of the "popular" response as that of being an indication of the individual's participation in the perceptual organization of the collectivity. Since that time, a number of other definitions have been put forward. Hertz (10) and Guirdham (7) accept a frequency of one in six as sufficient, as do Ames and her collaborators (1). Beck's list (2) consists of responses whose frequency is three times that of the next most frequent response to the same location, Klopfer's (13) list largely overlaps with that of the above mentioned investigators, but his choice of percepts is not primarily based on statistical analysis of a sample of records, but rather on expectations derived from the Gestalt character of the blots. As such, they are somewhat looser in terms of content, as compared with the lists of other investigators. Furthermore, Klopfer (16) also claims that these categories will be present, given a sufficiently large sample, regardless of cultural group.

The Cross-Cultural Approach

The cross-cultural approach to the use of the *P* concept has been somewhat hampered by the lack of agreement among those who have set up criteria and lists of *P* forms in Europe and America. The fact that in most instances they have not published lists of actual frequencies or rank orders, makes comparisons difficult.

However, the potential cultural variability and the need to establish *P* forms anew for each group was recognized as early as 1935 by the Bleulers (4) in their study of Moroccan Arabs. In their pioneer article, they state that they made no use of the *P* concept " . . . because to this end it would be necessary to set up new standards for the Arabs."

In 1945, Hallowell (8) tested the concept of the popular response on a sample of Saulteaux (Ojibwa) Indian records. In analysing the records of 102 Saulteaux adults, he compared the responses of these Indians with the "populars" established by various other investigators, with European or American subjects. Instead of choosing a set percentage as his criterion for P, he lists the 25 most frequent responses of his sample. Furthermore, he compared the frequencies of his adult group, with that of a sample of Saulteaux children, and found certain differences between the two groups. He also found that some *P* forms remained constant in the comparison between adults and children, and between Saulteaux and European and American subjects, while others varied; some forms frequently seen by the Indians being absent among the other groups, while conversely, some forms frequent among other groups being absent or rare among the Indians. Consequently, Hallowell suggested that there might be found to be three types of "popular" responses:

1. Unique populars, i.e., those most frequently selected by only one particular cultural group.

[1] The test data on which the present article is based were collected in Haiti by E. Bourguignon during a year's field trip (1947-1948), which was made possible by a grant from the Carnegie Corporation of New York and the Graduate School of Northwestern University, whose assistance is here gratefully acknowledged. All statistical analyses in this paper were made by E. Westerkamm Nett.

2. Common populars, i.e., those selected by several such groups.
3. Universal populars, i.e., those selected by all cultural groups.

A number of cross-cultural Rorschach studies have been published since 1945, but only Joseph and Murray (12) worked out a list of *P* forms by the one case out of three criterion for their sample of 30 adult Chamorros. Most of the other investigators either neglected the *P* concept altogether, or scored according to Klopfer's list. Honigman (11), in his monograph on the Kaska, uses Beck's list of "popular" responses; in addition he also counts as "popular" any response appearing more than once in his sample of 28 subjects. However, the resulting list of "popular" responses is not given. In his recent review of cross-cultural Rorschach studies, Hallowell (9) gives us some further comparative data from additional studies of American Indian groups that have so far remained unpublished.

In the following, we wish to present some data from Haiti which bear on the problem of the applicability of the *P* concept, and to compare our material with other comparable figures.

The Haitian Sample

In our analysis of the Rorschach protocols of 36 adult Haitians, we have attempted to follow a procedure similar to that of Hallowell described above. Our sample consists of 18 adult females and 18 adult males, adult being defined as 16 years and above, following Hallowell's criterion. Members of the two major social groupings (5), "élite" and "masses" are included; both urban and non-urban individuals are represented in the sample, for although most of the tests were administered in Port-au-Prince, the population is quite mobile and individuals from other parts of the island were selected as well. In education and occupation a wide range is represented in the sample from illiterates to teachers and writers, from peasants to former Cabinet members. The age range is from 16 to 56, the median age being approximately 20.5 years. The group is culturally highly heterogeneous, in that members of the élite are strongly imbued with French literary tradition, while the world view of the peasants is strongly influenced, if not entirely determined by the Afro-Catholic religion that has come to be known as *vodun*. Some of the subjects are known to experience spirit possession in connection with this religion. As to language, some of the protocols were administered in French, others in Creole, while some showed evidence of language mixing. The tests were administered by E. B. and two Haitian assistants: M. Maurice Dieudonné, and M. Roger Mortel.

Using Rorschach's criterion of selection by one out of three persons, there are six *P* forms for the 36 Haitian adults, as indicated in Table I: Card VIII, DI, quadruped (with or without FM); Card V, W, winged creature; Card I, W, Winged Creature, Card II, W or W, Human Figures; Card III, W or W, Human Figures; Card X, DI, Sea Animals (many legged creatures).

Differences between males and females for the twenty-five most frequently selected categories are not statistically significant, except for one percept: Card IV, W, Winged Creature, which is selected by 33.3 per cent of the males and no females.[2] Such differences do not occur in the six most frequently selected categories, or those qualifying as "populars" according to Rorschach's norm of one case out of three. On the other hand, if the criterion of one in six is chosen, this item would have to be taken into consideration.

[2] Since the samples were small (18 of each sex), the usual formula for critical ratio was corrected for small samples as described by Cronbach (6).

TABLE I—Twenty-five Most Frequently Selected Content Categories of 36 Adult Haitian Subjects, by Sex*

Card	Location (Klopfer's)	Content	Number	Total Percent	Male Number	Male Percent	Female Number	Female Percent
VIII	D1	Quadruped	32	88.9	17	94.4	15	83.3
V	W	Winged Creature	27	75.0	13	72.2	14	77.8
I	W	Winged Creature	19	52.8	11	61.1	8	44.4
II	W	Human Figures	17	47.2	8	44.4	9	50.0
III	W or W	Human Figures	15	41.7	7	38.9	8	44.4
X	D1	Sea Animal	13	36.1	9	50.0	4	22.2
III	D2	Animal	10	27.8	3	16.7	7	38.9
VIII	D3	Tree	10	27.8	3	16.7	7	38.9
IV	W	Human Figure	9	25.0	4	22.2	5	27.8
VI	W or W	Formless Object	8	22.2	3	16.7	5	27.8
VIII	W or Dr	Object on which Animal Climbs	8	22.2	4	22.2	4	22.2
VII	W	Formless Object	7	19.4	2	11.1	5	27.8
VI	D2	Cross	7	19.4	3	16.7	4	22.2
III	D1	Anatomy	6	16.7	2	11.1	4	22.2
IV	W	Winged Creature	6	16.7	6	33.3**	0	0.0
VII	W	Human	6	16.7	5	27.8	1	5.6
IX	D6	Person or Hd	6	16.7	4	22.2	2	11.1
X	D9	Formless Object	6	16.7	4	22.2	2	11.1
III	D8	One of the Two Human Figures	6	16.7	2	11.1	4	22.2
IX	W or W	Flowers and Containers	5	13.9	0	0.0	5	27.8
II	W or D3	Animal (s)	5	13.9	2	11.1	3	16.7
VI	D2	Winged Creature	5	13.9	2	11.1	3	16.7
VI	W or W	Sea Animal	4	11.1	1	5.6	3	16.7
I	D1	Human Figure	4	11.1	3	16.7	1	5.6
III	D1	Bow Tie, Ribbon Butterfly	4	11.1	1	5.6	3	16.7

* It must be recognized that the categories of "content" are essentially established at the discretion of the classifier. We proceeded by grouping individual responses, preferably into categories already established, as in Klopfer's list of P's, or in Hallowell's list of the 25 most frequently seen contents among his Saulteaux subjects. The remaining responses to specific D or W locations, were grouped according to larger classes, where this procedure seemed justified. Thus Card VI W or W "formless object" includes mountains, smoke, wall, clouds, tears or symbolic as is the case with Card VII W. Card VI D2 cross includes one church tower; Card X D9 formless object includes wall, sky, steppes, and rocky shore. Hallowell recognizes the fact that the degree of content specificity prescribed by different investigators varies considerably.

** Difference between male and female statistically significant at .01 level.

The average number of *P*'s produced for the total sample is 3.89. A breakdown by sex results in an average of 4.33 *P* for males, and 3.44 for females, a difference of .89. A breakdown by class results in an average of 4.35 for upper class respondents, and 3.47 for lower class respondents, a difference of .88. The highest average incidence of *P* occurs among upper class males (4.70), the lowest among lower class females (3.18). The figures for upper class females (3.86) and lower class males (3.88) approach the average for the total group.[3]

Comparisons of Haitians, Saulteaux and Chamorros

Having established the twenty-five content categories most frequently seen by our Haitian subjects, we may compare this list with that provided by Hallowell for the Saulteaux adults, as well as with the "populars" established by Joseph and Murray (12) for a group of 30 Chamorro Adults.

Of the six percepts that qualify as Haitian populars by the criterion of

[3] Klopfer et al (14, p. 312) expect 5 *P*'s in an average record of 20 to 45 responses.

TABLE II—Comparison of 25 Content Categories Most Frequently Seen by 36 Haitian Adults With the Frequency of the Same Categories Seen by 102 Saulteaux Adults and 30 Chamorro Adults

Card	Location	Content	1 Haitians		2 Saulteaux		3 Chamorros	
			No.	%	No.	%	No.	%
VIII	D1	Quadruped	32	88.9	96	94.1	27	90.0
V	W	Winged Creatures	27	75.0	52	51.0	15	50.0
I	W	Winged Creatures	19	52.8	38	37.2	11	36.7
II	W	Human Figures	17	47.2	18	17.6	....	.....
III	W or W	Human Figures	15	41.7	36	35.2	17	56.7
X	D1	Sea Animal	13	36.1	....	.....	5	16.7
III	D2	Animal	11	30.6	18	17.6	....	.....
VIII	D3	Tree	10	27.8	27	26.4	....	.....
IV	W	Human	9	25.0	21	20.5	....	.....
VI	W or W	Formless Object	8	22.2	....	.....	....	.....
VIII	W or Dr	Object on which Animal Climbs	8	19.4	....	.....	....	.....
VI	D2	Cross	7	22.2	....	.....	....	.....
VII	W	Formless Object	7	19.4	11*	10.7	....	.....
III	D1	Anatomy	6	16.7	....	.....	5	16.7
IV	W	Winged Creature	6	16.7	16	15.6	12†	40.0
VII	W	Human	6	16.7	17	16.6	....	.....
IX	D6	Person or Hd.	6	16.7	36	35.2	....	.....
X	D9	Formless Object	6	16.7	....	.....	....	.....
III	D8	One of the two human figures	6‡	16.7	....	.....	....	.....
IV	W	Formless Object	5	13.9	....	.....	....	.....
VI	W or W	Flowers and Containers	5	13.9	....	.....	....	.....
II	W or D3	Animal (s)	5	13.9	78	76.1	10	33.3
VI	W or W	Sea Animal	4	11.1	....	.....	....	.....
I	D1	Human Figure	4	11.1	....	.....	....	.....
III	D1	Bowtie, Ribbon, Butterfly	4	11.1	....	.....	1	3.3

* Saulteaux includes only "clouds."
† Chamorro Location is W or W.
‡ Includes 1 human skeleton.

one case out of three, two (Humans, W Card II, and Sea Animal, D1 Card X), are not so qualified by the Saulteaux and the Chamorros.

If the criterion of one in six is selected, we arrive at a total of 19 *P* for our Haitian adults, including one form, which as pointed out above, involves a significant difference between males and females. Hallowell (9) reports a total of 23 *P* forms among the Saulteaux adults, on the basis of the same criterion. In the Haitian list of 19 percepts, we get 6 Animals (including winged creatures, among which are included 2 airplanes, and 6 werewolves, as well as the usual bats and butterflies); 6 Humans, (including for Card II particularly a number of masked and disguised and hooded figures), one anatomy percept (Card III, the usual, bowtie, ribbon), 5 Objects of which 4 are characterized by exceedingly vague form, and only one nature response (tree, Card VIII). Both in terms of content and location we have here a striking difference between the Haitian and the 25 content categories listed most frequently for the Saulteaux by Hallowell. The Haitians show a large number of W areas and "Formless Object" content, the Saulteaux having many more D's and dd's and Animal content.

Of the 13 content categories listed for both Haitian and Saulteaux samples, a difference in frequencies of content categories selected exists at a

TABLE III—Klopfer "Popular" Responses Compared with Frequency Seen by 36 Haitian Adults, 30 Chamorro Adults, and 102 Saulteaux Adults

Card	Location (Klopfer)	Content	Haitians No.	Haitians %	Chamorros No.	Chamorros %	Saulteaux No.	Saulteaux %
Popular In All Three Groups								
I	W	Winged Creature	19	52.8	11	36.7	38	37.2
V	W	Winged Creature	27	75.0	15	50.0	52	51.0
VIII	D1	Quadrupeds	32	89.9	27	90.0	96	94.1
III	W	2 Human Figures	15	41.7	17	56.7	36	35.2
Popular In Two Groups								
II	W or D3	Animal (s)	5	13.9	10	33.3	78	37.2
X	D1	Sea Animal	13	36.1	5	16.7	....	.....
X	D7	Rabbit, Donkey, Goat	2	5.6	6	20.0	56	55.0
Popular In No Group								
III	D1	Bowtie, Butterfly, etc.	4	11.1	1	3.3	....	.....
Popular In One Group								
VI	W or D1	Animal Skin	2	5.6	9	30.0	20	19.6
X	D2	Caterpillar, etc.	1	2.8	5	16.7	....	.....
Popular In Only One Group — But Not A Klopfer Popular								
II	W or W	Human Figures	17	47.2	....	.....	18	17.6
IV	W or W	Winged Creature	6	16.7	12	40.0	16	15.6
IX	D6	Human Figures	6	16.7	....	.....	36	35.2
IX	D3	Animal Head	0	0.0	....	.....	36	35.2

statistically significant level for four categories.[4] These are the following percepts, Card V W Winged Creatures, Card II W Human Figures, Card III D2 Animals, Card II W or D3 Animals.

A similar comparison between Chamorro and Haitian samples, and between Chamorro and Saulteaux samples was not possible since the Chamorro twenty-five most frequently selected content categories were not presented as such. "Populars" according to the Rorschach criterion were listed for this sample, however, and additional information was given concerning the content categories listed by Klopfer as Universal Populars. Of the nine percentages listed, only one was significantly different from the Haitian frequencies—The Card III D1 Butterfly, Ribbon, Bow Tie content. The percentages could be compared with six of the Saulteaux percentages, and two were significantly different statistically — Card IV W Winged Creature and Card II W or D3 Animal(s). In the first case the Chamorro frequency was greater; in the second, the Saulteaux.

Table III checks Klopfer's universal populars against *P* forms established empirically in samples of respondents from three societies, our criterion being, as already indicated, a response given by one subject out of three. In other words, this Table attempts to indicate to what extent there is concensus of perception in our three cultural groups. We find the following content categories in all three of the groups under investigation and as listed by Klopfer as Universal Populars: Card I W Winged Creature, Card III W Two Human Figures, Card V W Winged Creature, Card VIII D1 Quadrupeds. It is further to be noted that Card V W Winged Creature is listed by Hallowell (9) as found among the five most frequent responses in five additional Indian groups; Navaho, Zuni, Menomini, Tuscarora and Wind River Shoshone. Card VIII D1 Quadrupeds is found in four such groups: Navaho, Zuni, Menomini, and Wind River Shoshone, and Card III W Human Figures by three: Navaho, Menomini, and Tuscarora.

[4] Significance was determined at the .01 level.

Card II W or D3 Animal (s) is considered a *P* by Klopfer, as it is among the Saulteaux and the Chamorro. Hallowell reports it as among the five most frequent responses for four further Indian groups: Menomini, Tuscarora, Zuni and Navaho. Among the Haitians however, this form is seen by only 13.9 per cent of our subjects, it therefore qualifies as a *P* by neither the one out of three criterion nor by the criterion of one out of six.

Card X D1 Sea Animal is found to be a *P* form according to Klopfer's list, and among the Haitians as well. It is not listed among the Chamorros or the Saulteaux. On the other hand, Card X D7 Rabbit, Donkey, Goat, occurs only among the Saulteaux and on Klopfer's list, and Hallowell finds it among the five most frequent responses for three additional Indian tribes: Wind River Shoshone, Zuni, and Navaho. It does not occur among the Chamorro or the Haitians. Indeed, among our Haitian subjects Rabbit was not once used for that location, while there was only one donkey and one calf (also a long-eared animal). While rabbits are not plentiful in the Haitian environments, donkeys and goats certainly are, and rabbits do occur twice with reference to other locations.

Three items of Klopfer's list of *P*'s are not seen with sufficient frequency by any of the other groups. These are: Card III D1 Bowtie, Ribbon, Butterfly, Card VI W or D1 Animal Skin, and Card X D2 Caterpillar.

On the other hand, there are four Responses not listed as popular by Klopfer, which occur with a sufficient frequency among one or the other of the groups under investigation: Card II W or W Human Figures is seen by 47.2 per cent of the Haitian subjects. This is incidentally also scored as popular by Rorschach for his Swiss subjects. It is also scored a "popular" by Beck for Americans.

Card IV W or W Winged Creature may be considered a *P* only for the Chamorros, while Card IX D6 Human Figures, and D3 Animal Head are unique to the Saulteaux.

Only Card VII shows no *P* response for any of the groups, although Rorschach scored D2 or D3, Animal or Human Head or Mask a *P* among his Swiss subjects.

While we thus see certain group differences in *P* frequencies emerge, Klopfer's admonition to the effect that large samples be used in empirical verification should be kept in mind here. The Haitian sample of 36 persons is just above the minimum of 30 which it is advisable to use for statistical purposes.

The Relationship Between Content and Location in Establishing P

For our Haitian sample we have attempted to treat the matter of *P*'s in still another way. In Table IV the percentage of respondents selecting a content category is calculated on the basis of the number of respondents selecting the area for a given card. This was done only for the six "popular" responses according to Rorschach's criterion, or the six most frequently selected areas and locations.

The relationship between frequency of content and location was established here for purposes of illustrating several points.[5] First, it demonstrates that while there is a relationship between the number of subjects selecting a content category who also select a given location, it is not a one-to-one relationship. In other words, content categories selected as occurring most frequently on the basis of the total number of respondents (36 in this case) can be ranked in the order in which they appear in column 2, whereas content categories selected on the basis of total number of respondents selecting a given location (34 for Card VIII D1) are ordered as

[5] This is a modification of Beck's technique for arriving at *P* (2, p. 291). "In respect to a given W or D, the percentage of the *P* association in relation to all the responses on that W or D is approximaately three times—or more—as great as that of the next most frequent response for that W or D."

TABLE IV—The Six Most Frequently Selected Percepts and Their Relationship to the Frequency with Which the Area is Selected by 36 Haitians

Card	Location (Klopfer's)	(1) Number of Subjects Selecting Location	Content	(2) Number of Subjects Selecting Content	Percent of Subjects Selecting C Based on Subjects Selecting L	(3) Rank Order of Percents
VIII	D1	34	Quadruped	32	95.0	1
V	W	35	Winged Crea.	27	77.0	2
I	W	28	Winged Crea.	19	68.0	5.5
II	W	24	Human Figure	17	71.0	4
III	W or W	22	Human Figure	15	68.0	5.5
X	D1	17	Sea Animals	13	76.0	3

in column 3 of Table IV. Between the percentages for the first four content categories ranked in column 3 there are no differences other than those expected to occur by chance. It is suggested here that this may be a more rigorous basis for selecting *P*s within a given sample. We can be assured that the individual Haitian who selects the percepts ranked 1, 2, 3, or 4 is more closely approximating the "perceptual patterning of the collectivity" than one selecting either of the two percepts ranking 5.5.

Second, and closely connected to the above point, is the kind of cross-cultural comparison that this type of analysis makes possible. In this paper we have no basis for such comparison because for other adult samples figures on the content-location relationship are not available. These statistics would appear to provide a basis for establishing what might perhaps be less arbitrary criteria for the *P* concept than any other. The evidence for the success of this technique awaits publication of comparable figures and subsequent statistical analysis of comparable results, for different groups.

The Relationship Between Determinants and the P Concept

Following Rorschach we have suggested earlier in this paper that *P* responses indicate something of the perceptual approach of a given community. We have preferred to restrict ourselves on the whole to a discussion of *P* in terms of the one out of three criterion, for we find that this is the criterion most frequently used by other investigators, thus providing a better basis for comparison.

W. Klopfer, in his recent discussion of *P* (15), indicates something of the different potentialities of the various cards. As we compare the *P* forms discussed by him with those of the groups investigated in the present article, one is struck by disagreements as well as agreements. Thus, in none of the percepts that upon investigation turn out to be *P*s among the Haitians, Chamorros or Saulteaux, is Fc or cF a requirement, as it is in the percept "Animal Skin" for Card VI, which is a *P* in Klopfer's list and is scored as such by most investigators with European and American subjects. Among our Haitian subjects, only two actually saw the familiar animal skin in Card VI, while four subjects saw sea animals in that card. This seems to indicate a rareness of texture responses, a phenomenon mentioned by Billig, Gillin and Davidson (3) in their study of Guatemala Indians and Ladinos. They interpreted this rareness of texture responses as a lack of awareness of contacts with others.

A similar problem arises with reference to another percept—Card II, W Human Figures. Table III indicates that this percept is a Haitian "popular" seen more frequently than Card III, W Human Figures. While for other groups the typical M is to be found in Card III, some Haitian sub-

jects who saw human figures in Card II were unable to see them in Card III. An additional feature of the human figures in Card II as seen by our Haitian subjects is that they are frequently described as "hooded" or "masked" or "disguised." The hypothesis is here tentatively suggested that some Haitian subjects were repelled by the break in the Gestalt of Card III and unable to build a total percept, whereas they had no such difficulty in combining the red and black areas in Card II. The depersonalization of the figures in Card II is a matter significant for Haitian interpersonal relations, a fuller treatment of which must await more extensive analysis of other features of the records. The Card II W Human Figure percept, therefore, may be considered a *P* unique to the Haitian group, in Hallowell's designation of a Unique Popular, in that the humans seen here by our Haitian sample are frequently characterized by the disguise motif. This distinguishes the Haitian concept from the two human figures considered popular by Rorschach for his Swiss sample. For the purposes of the present discussion it appears noteworthy that unique *Ps* may indicate important cultural preoccupations.

Summary

In summary, may we conclude that Hallowell's hypotheses of 1945 appear to be borne out, and that their explorations may lead to important findings in the field of culture and personality—showing us universal human features as well as significant differences between cultural groups. It is further hoped that this presentation may provide a slight impetus toward greater standardization in Rorschach publications and procedures.

References

1. Ames, Louise B. et al. *Child Rorschach Responses: Developmental Trends from Two to Ten Years.* New York: Hoeber, 1952.

2. Beck, S. J. *Rorschach's Test. Vol. I: Basic Processes.* New York: Grune & Stratton, 1944.

3. Billig, O., Gillin, J., and Davidson, W. Aspects of personality and culture in a Guatemalan Community: Ethnological and Rorschach approaches. *J. of Personal.,* 1947-8, *16,* 153-187, 326-368.

4. Bleuler, M. and Bleuler, R. Rorschach's ink-blot test and racial psychology: Mental peculiarities of Moroccans. *Char. and Pers.,* 1935, *4,* 97-114.

5. Bourguignon, E. E. Class structure and acculturation in Haiti. *Ohio J. Sci.,* 1952, 317-320.

6. Cronbach, L. J. Statistical methods applied to Rorschach scores. *Psychol. Bull.,* 1949, *46,* 393-429.

7. Guirdham, S. On the value of the Rorschach Test. *J. ment. Sci.,* 1935, *81,* 870-893.

8. Hallowell, A. I. 'Popular' responses and cultural differences: An analysis based on frequencies in a group of American Indian subjects. *Rorschach Res. Exch.,* 1945, *9,* 153-168.

9. Hallowell, A. I. The Rorschach test in personality and culture studies. In Klopfer, B. (Ed.). *Developments in the Rorschach Technique.* Vol. II. Yonkers-on-Hudson: World Book. (In press.)

10. Hertz, Marguerite R. The 'popular' response factor in Rorschach scoring. *J. Psychol.,* 1938, *6,* 3-31.

11. Honigmann, J. J. *Culture and Ethos of Kaska Society.* New Haven: Yale University Press, 1949.

12. Joseph, A. and Murray, V. *Chamorros and Carolinians of Saipan.* Cambridge: Harvard University Press, 1951.

13. Klopfer, B. and Kelley, D. M. *The Rorschach Technique.* Yonkers-on-Hudson: World Book, 1941.

14. Klopfer, B. et al. *Developments in the Rorschach Technique.* Vol. I. Yonkers-on-Hudson: World Book, 1953.

15. Klopfer, W. Interpretative hypotheses derived from the analysis of content. In Klopfer, B. et al. *Developments in the Rorschach Technique.* Yonkers-on-Hudson: World Book, 1953.

16. Rorschach H. *Psychodiagnostics.* Berne, Switzerland: Hans Huber, 1942.

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Some Problems in the Research Application of the Thematic Apperception Test [1]

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The authors of the Thematic Apperception Test, in introducing the technique in 1935, had as their purpose the demonstration of a method for investigating the fantasy of normal individuals (16). It was one of fifteen techniques devised for obtaining data about normal people, by means of which the authors were able to build up a theoretical framework of personality. It has been pointed out since that time that the chief merits of the technique lie in the laboratory and that it is a research tool rather than a clinical instrument (21). However, the implications of this technique for investigating the personality of patients were immediately obvious and the clinical use of the test has outstripped its research applications. One result of this precipitous removal of the technique from the laboratory to the clinic has been a proliferation of methods of analysis of TAT responses without any serious tests of their reliability or validity. Thus there are about as many ways of analyzing TAT stories as there are clinical psychologists who use the method, but very few of these methods have been demonstrated to be reliable or reproducible by others.

The most popular method of analysis seems to be a subjective, intuitive approach in which the entire protocol is perused a number of times by the analyst, and such things are noted as repetitive themes, the sequence of stories, peculiar verbalizations, perceptual distortions, slips of the tongue, the differential degree of emotion invested in the stories, the outcome, unusual interpretations, etc. These may or may not be written down by the analyst. They are then usually checked against a subjective kind of norm which the psychologist has built up in his experience by reading a large number and variety of TAT protocols submitted by patients and, it is hoped, by normal individuals. Then, on the basis of the total impression which remains with him, the psychologist writes up his interpretation of the subject's personality. This may very often be congruent with the impressions of the individual that the therapist, caseworker, or teacher has. Also it may furnish them with new information of which they were previously unaware but which on further investigation they now see as true. This kind of practical validity which the impressions of the clinical psychologist may have is important. However, it is difficult, if not impossible, to pin down the basis on which specific statements about the subject are generally made, what specifically there is in this story or series of stories which leads the analyst to that particular conclusion. It is for this reason that such methods of TAT analysis are generally uncommunicable and cannot be duplicated.

There is the danger with this kind of impressionistic analysis of the protocol that all of the evidence may not come under consideration. On the basis of the first two or three cards, sometimes even on the basis of the first card alone, certain impressions are gained about the subject. All subsequent stories are then considered in the light of these initial impressions, negative evidence tends to be sloughed off, and only that evidence which reinforces the initial impression is retained. This is not necessarily a delib-

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erate practice, but may often be quite unconscious on the part of the experimenter. It has been pointed out by many that the TAT is very often as much a projective device for the examiner as it is for the individual taking the test (5, 8, 20). In order to eliminate this kind of selective perception, it is necessary that a method be devised whereby *all* the evidence in a protocol may be noted and summarized. Equally important is the need for adequate normative data against which the individual results can be checked. However, with such a method there is the danger that important qualitative differences will be overlooked, since many clinicians claim that it is impossible to quantify and categorize and standardize the subtle nuances of an individual's responses which often are the key to the interpretation. The use of rating scales, however, affords an opportunity to combine qualitative, clinical judgments and a more or less rigorous quantification. It is possible for the ratings to be as subjective and holistic as necessary, but it is essential that the criteria be verbalized so that the method can be communicated and subsequent raters can utilize the scales with comparable results. Pertinent quotations from protocols make communication of the criteria more objective. The scales should be derived empirically from the protocols themselves and not based on predetermined categories without reference to actual stories. The original ratings should be made on a continuum with no subdivisions, so that they can be analyzed by statistical techniques requiring continuous data which are normally distributed. Analysis of variance, for example, has been shown to have considerable possibilities for clinical research since it allows for the simultaneous investigation of several factors and the interaction of these factors which is often of great importance.

Although there are many aspects of TAT stories which can be quantified by the use of rating scales, such as the emotional tone of the stories, outcomes, adequacy of central character, level of interpretation, activity-passivity, etc., and thus be made amenable to the most sophisticated statistical treatment, there are other factors which cannot be so ordered, primarily because little judgmental function is utilized in their definition. These are such things as actual themes, identification of characters and objects, distortions of the percepts, etc. More straightforward counting procedures such as chi square (13), the Mann-Whitney "U" test (14), the Kolmogorov-Smirnov test (15), and other non-parametric statistics described by Moses (17), can be used with these aspects of the stories. Of course it might be possible to rate the degree of perceptual distortion, or the strength of identification with various characters, etc., but designating the distortions, characters, themes, etc., is merely a matter of categorization and counting. Although such procedures may be more simple, they have somewhat limited utility because they yield discrete data with which most of the more discriminatory kinds of statistical techniques cannot be justifiably used. Procedures such as chi square and contingency coefficients can legitimately be used with frequency data, but McNemar (13) points out, for example, that the latter statistic cannot be compared with a Pearson product-moment correlation since its upper limit varies with the number of categories. However, despite their limited statistical utility, frequency counts are often necessary, and there *are* respectable methods by which they can be evaluated.

The use of these psychometric procedures with a projective technique like the Thematic Apperception Technique is not really as radical a procedure as some diehard personalogists on one hand, or psychometricians on the other, may fear. As Rosenzweig (19) has pointed out, the differences between the two types of procedures

have been over-emphasized and in practice they are more complementary than contradictory. The extension of psychometric scaling to TAT responses has been successful and has been shown to have considerable utility in research and clinical practice (6, 23).

Once a reliable, communicable method of analysis has been adopted, the next item which must be disposed of before meaningful research can be done with the Thematic Apperception Technique is the problem of its validity. Studies in this aspect of the TAT have not been uniformly encouraging. Especially disappointing have been those studies which have dealt with its ability to discriminate diagnostic groups. However, the criterion of validity, descriptive diagnosis, is itself of uncertain validity and the fact that the TAT fails to make such discriminations is no proof of its invalidity.

When, however, as in a research by Harlow (7), two groups of known behavioral differences are compared on specific TAT variables which have been selected because they seem to fit in with a theoretical basis for differentiation between the two groups, results are a good deal better. Harlow was interested in the personality characteristics of weight lifters. On the basis of psychoanalytic theory he derived certain hypotheses about the dynamics of such individuals and then selected 14 need-press variables which it seemed should bear directly on these hypotheses. He demonstrated first that these variables could be rated reliably and then made predictions about the differences that would be found between a group of 20 weight lifters and a carefully matched group of 20 non-weight lifting athletes. Eleven out of his 14 predictions were significant at the .05 level of confidence or better. Furthermore, there was very close agreement with predictions made on the basis of the sentence-completion test. Although the TAT was used in this study for the purpose of validating certain psychoanalytic hypotheses, because of the consistency with which the predictions are made and fulfilled, the results indirectly contribute evidence for the validity of the TAT, itself.

The ideal way of demonstrating the validity of the TAT, of course, is to define an independent variable which is meaningful for personality, and which can be measured and manipulated in an experimental situation, and then to determine whether differences in the magnitude of this variable are correlated with differences in TAT stories. The work of McClelland and his associates (1, 9, 10, 11, 12) is a beginning effort in this direction. Starting with an unmistakable drive, hunger, which it was simple to define and manipulate, they were able to show that, with increasing periods of food deprivation, there was a consistent change in the way that individuals responded to TAT type pictures with stories of their own imagination. They were able in further experiments to extend this type of procedure, wherein the intensity of a particular motive is controlled experimentally and changes that occur in the TAT are classified as the intensity of motivation increases, to more complex kinds of motivation which have meaning for the personality description of individuals, e.g., need for achievement (11), need for security (2), need for sex (4), and need for affiliation (22). They manipulated the intensity of motivation for achievement, for example, in line with traditional experiments in the field by reporting fake norms and thus inducing feelings of success or failure, and found that the need for achievement score was a valid measure.

Another attempt at experimental validation along slightly different lines is the research of Calvin and Ward (3). A group of 90 subjects had to rate on a five point scale the certainty of their prediction that a buzzer would follow a light. (The buzzer fol-

lowed 50% of the time in random order.) The 10 individuals of the highest degree of certainty and the 10 with the lowest degree of certainty were then selected from the original group, and their TAT productions were compared. This and the McClelland type study would seem to be the approach that pays off in the demonstration of validity of the TAT—to select groups on the basis of a carefully and objectively stated c r i t e r i o n, securely anchored to experimental operations, and to predict differential behavior of subjects in these groups when exposed to the same stimulation—the TAT cards. The acid test of any investigative procedure of personality is its ability to predict differences among individuals when conditions are carefully stated. Research of this type has only recently begun to appear and it would seem to be the direction that future research on the validity of the TAT should take. Without the careful statement of conditions and the controlled manipulation of one variable at a time, it will be impossible ever to solve the old riddle of the relationship between projective test fantasy and the overt behavior of the individual. Is what the subject says about the characters in his stories representational of the way he feels and actually *would* act in real life, or is it somehow compensational for the way he feels and reacts? Research which bears on this point is contradictory. There has been some effort to account for the inconsistencies on the basis of the acceptability of the specific need of the individual subject and the social sanctions which result from the expression of certain needs and not from others. Pittluck (18) has shown that TAT behavior can be explained according to the same psychological principles as any other behavior. She assumes that the expression of needs is always the resultant of two forces, the strength of the need and the anxiety opposing its expression. Thus she was able to relate the likelihood of aggressive acting out behavior, not to the total number of expressions of aggression in the stories alone, but to the presence or absence of certain modifying mechanisms in TAT stories such as rejection or denial of aggression, excusing of the aggression by placement in a socially acceptable context, non-completion of aggression planned by a fantasy character, and displacement of the aggression to non-human objects. It was found that the tendency to use these mechanisms was inversely related to the tendency to act out. The subjects who used more defense mechanisms in proportion to their outgoing aggressive fantasies tended to act out less than the patients who used proportionally fewer such mechanisms, and subjects with more unmodified primitive responses in fantasy tended to act out more than those with fewer fantasies of this nature.

The main problem for future research is to determine in a similar way just how fantasy is related to behavior, so that specific predictions can be made from behavior in the controlled testing situation to behavior on the job, in school, at home, with the opposite sex, with like sexed peers, etc. It has not been demonstrated thus far that we can make any broad generalizations about the relationship between fantasy and behavior. In some situations this relationship seems to be compensational; in others representational. At certain times themes in the stories signify actual behavior; at other times, a fear, a wish, or a defense. Perhaps the most that can be expected is the construction of some limited generalizations which will have merit in making specific predictions possible so that it can be stated, given an individual of a certain sex, age, education, socio-economic status, when he is placed in a certain kind of a situation, the needs and defenses which we have seen operating in his TAT productions allow us to predict that he will react in a certain specific

way. These predictions will differ according to the subject, the need, drive or attitude under consideration, and the situation in which the criterion behavior is evoked. Just as we do for the Rorschach test, we must break down the TAT into its component parts in order to validate our hypotheses on more easily manipulable terms. In the TAT these component parts are primarily motivational systems. Specific experiments have to be set up in which sharply defined motivations are investigated: e.g., achievement, aggression, dependence, sex, affiliation, acquisition, etc. Once we have been able to validate limited generalizations about the relationship of expression of these motivations in behavior and in TAT stories, we can then set about validating more molar relationships of personality content as represented in fantasy and behavior. It might also be possible in this way to validate some of the expressions in the TAT of personality structure, such as defense mechanisms, ego strength, emotional lability, etc.

REFERENCES

1. Atkinson, J. W., and McClelland, D. C. Projective expression of needs. II. Effect of different intensities of hunger drive on thematic apperception. *J. exp. Psychol.*, 1948, *38*, 643-658.

2. Birney, R. C. Effect of threat on thematic apperception. Unpublished honors dissertation, Wesleyan University, 1950.

3. Calvin, J. S., and Ward, L. C. An attempted experimental validation of the Thematic Apperception Test. *J. clin. Psychol.*, 1950, *6*, 377-381.

4. Clark, R. A. Projective measurement of experimentally induced levels of sexual motivation. *J. exp. Psychol.*, 1952, *44*, 391-399.

5. Department of the Army and Air Force. Training manual 8-242, AFM 160-45. *Military clinical psychology*. Washington: U. S. Government Printing Office, 1951. Pp. 54-71.

6. Eron, L. D. A normative study of the Thematic Apperception Test. *Psychol. Monogr.*, 1950, *64*, No. 9 (Whole no. 315).

7. Harlow, R. G. Masculine inadequacy and compensatory development of physique. *J. Pers.*, 1951, *19*, 312-324.

8. Lindzey, G. Thematic Apperception Test: Interpretative assumptions and related empirical evidence. *Psychol. Bull.*, 1952, *49*, 1-26.

9. McClelland, D. C., and Atkinson, J. W. The projective expression of needs: I. The Effect of different intensities of the hunger drive on perception. *J. Psychol.*, 1948, *25*, 205-222.

10. McClelland, D. C., Atkinson, J. W., and Clark, R. A. The projective expression of needs: III. The effect of ego-involvement, success and failure on perception. *J. Psychol.*, 1949, *27*, 311-330.

11. McClelland, D. C., Clark, R. A., Roby, T. B., and Atkinson, J. W. The projective expression of needs: IV. The effect of the need for achievement on thematic apperception. *J. exp. Psychol.*, 1949, *39*, 242-255.

12. McClelland, D. C., and Liberman, A. M. Effect of need achievement on recognition on need-related words. *J. Pers.*, 1949, *18*, 236-251.

13. McNemar, Q. *Psychological Statistics*. New York: Wiley, 1949.

14. Mann, H. B., and Whitney, D. R. On a test of whether one of two random variables is stochastically larger than the other. *Ann. math. Statist.*, 1947, *18*, 50-60.

15. Massey, F. J., Jr. The Kolmogorov-Smirnov test for goodness of fit. *J. Amer. statist. Ass.*, 1951, *46*, 68-78.

16. Morgan, C. D., and Murray, H. A. A method for investigating fantasies. The Thematic Apperception Test. *Arch. Neurol. Psychiat.*, Chicago, 1935, *34*, 289-306.

17. Moses, L. Non parametric statistics for psychological research. *Psychol. Bull.*, 1952, *49*, 122-143.

18. Pittluck, Patricia. The relation between aggressive fantasy and overt behavior. Unpublished doctor's dissertation, Yale University, 1950.

19. Rosenzweig, S. Apperceptive norms for the Thematic Apperception Test. I. The problem of norms in projective methods. *J. Pers.*, 1949, *17*, 475-482.

20. Rotter, J. B. Thematic Apperception Tests: suggestions for administration and interpretation. *J. Pers.*, 1946, *15*, 70-92.

21. Sanford, R. N. Foreword in Betty Aron. *A manual for the analysis of the Thematic Apperception Test*. Berkeley, Calif.: Willis F. Berg, 1949.

22. Shipley, T. E., and Veroff, J. A projective measure of need affiliation. *J. exp. Psychol.*, 1952, *43*, 349-356.

23. Zubin, J., and Eron, L. D. Experimental abnormal psychology. Mimeographed preliminary edition, New York State Psychiatric Institute, 1953.

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An Experimental Test of the Rorschach Assumption of the Impact of Color on the Perceptual and Associative Processes

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Rorschach originally postulated the relationship between " . . . color perception and the dynamics of affectivity" (11, p. 35). While support for this relationship has primarily been in terms of clinical experience, research relevant to this problem has been reviewed by Rickers-Ovsiankina (10) and Fortier (4), both of whom conclude that the response to color on the Rorschach is related to emotionality.

However, research attempting to demonstrate the more basic assumption that color on the Rorschach plays a role in determining how a subject responds to the test has generally resulted in a denial of this thesis. Rabin and Sanderson (8), reversing the order of the Rorschach cards in order to determine whether the original sequence of the cards tends to enhance the color effect, found that the suddenness of the appearance of color does not affect either productivity or reaction time. Lazarus (7) prepared photographic reproductions of the Rorschach for group presentation and compared performance on them to performance on the original slides. He found that color had very little effect on the scoring categories other than color scores and that "color shock" occurred with similar frequency on the standard and the achromatic blots.

Dubrovner et al. (3), in a similar experiment, found no support for the thesis that color on the Rorschach influences either productivity or speed of reaction. Sappenfield and Buker (12) similarly used the group Rorschach method to test the validity of the VIII, IX, X% as an indicator of responsiveness to color by comparing performance on the standard and an achromatic series of blots. Their findings failed to support this assumption regarding VIII, IX, X%. Even where there is experimental evidence for the thesis that color does increase both reaction time and emotional accompaniments (15), these results have been interpreted as being less a function of color and more a function of the problem posed by the incongruity between form and color. This latter research by Siipola has probably been the most emphatic challenge to the basic theory of color in the Rorschach.

These results have led several psychologists to doubt the validity and the very existence of a color phenomenon on the Rorschach. In reviewing several of these studies recently, Schofield has stated, "Rorschachers will hold to the 'party line' and will reject researches such as these as atomistic and negligent of the interdependence of scoring variables and the configurational interpretations of records" (14, p. 235). To Schofield's own valid criticisms of the atomistic nature of these studies should be added several additional ones having to do with methodological problems that complicate experimental designs in this area of investigation. These are: (a) Several of the studies have ignored the fact that subjects may be affected in one of two ways by color, if at all, i.e., excitation (greater productivity, shorter reaction times, etc.) or inhibition (reduced productivity, increased reaction time, etc.). The studies have usually failed to consider these two types of subjects separately with the possible consequence that these two types of reactions to color could effectively cancel each other in

group statistics. (b) Most of the research has been based on normal populations whose range of reactions to color is probably narrower than that which would be expected in an abnormal population. This would result in a restriction of the range of color scores and limit the possibility of demonstrating statistical relationships, even where they do exist. (c) In several studies, the group Rorschach has been used, and there is no evidence as yet to suggest that findings with this method can be generalized to the individual clinical method. (d) Lastly, several studies have used a test-retest method involving the traditional and a modified Rorschach, with the attendant difficulties in controlling for practice and memory, the effects of which are to reduce differences and emphasize similarities (2). It is therefore possible to view with skepticism much of this research because of the failure to master the difficult methodological problems presented by this area of investigation.

Rorschach and subsequent workers with his technique have implicitly assumed that color on the Rorschach has an impact on two psychological processes, i.e., perception and association, but it has been Rapaport et al. (9) who has made most explicit this theoretical formulation. The present study was stimulated by the discussion of Rorschach test rationale by Rapaport and his colleagues.

Utilizing a methodology which corrects for limitations in the researches noted above, it is the purpose of this research to test the assumption that color on the Rorschach has an impact on the perceptual and associative processes. More specifically, it is proposed to test the thesis that a subject's perceptual and associative functioning under stimulation by color on the Rorschach is similar to his functioning under stimulation by color in perceptual and associative tasks. The study is not concerned with the rationale of color on the Rorschach but rather with the basic question of whether color has any stimulus value in determining responses to the blots. One study which is of relevance is that of Sarason and Potter (13) who found a relationship between performance on the colored Kohs block designs and constructive handling of the colored Rorschach cards.

SUBJECTS

The subjects for this research were 39 patients in a state psychiatric hospital who were selected at random without regard for any criteria except their ability to perform representatively on tests. Their ages ranged from 16 to 64 with a mean of 33.8 years. There were 12 women and 27 men with a wide variety of diagnoses (Table 1).

TABLE I—Diagnoses of Subjects

Schizophrenia		15
Paranoid	8	
Hebephrenic	1	
Catatonic	1	
Simple	1	
Other	4	
Paranoid Condition		4
Manic-Depressive, Manic		2
Alcoholic Psychosis		4
Psychoses due to Epilepsy		3
Psychoneurosis		5
Without psychoses		6
Psychopathic personality	3	
Chronic alcoholism	2	
Drug addiction	1	
Total		39

PROCEDURE

The basic plan of the research was to utilize six Rorschach measures (number of responses, VIII, IX, X%, reaction time, F+%, F%, and W%) from which predictions were made to measures on various perceptual and associative tasks.

The Experimental Tasks

Five tasks measuring perceptual and associative functioning were prepared. These tasks were:

1. *Tachistoscope.* A list of twenty words was presented tachistoscopically

on a white screen (achromatic) with speeds ranging from one one-hundredth of a second to one full second. Another list of twenty words was presented on a red screen (chromatic). After every fourth word in the chromatic presentation, a word was presented achromatically in order to minimize accommodation to color. These same four words were also presented in the same position in the achromatic series. Approximately one half of the subjects received the chromatic presentation first.[1] Each list of words was presented chromatically approximately as many times as it was presented achromatically. The words (Table II) were all one syllable and five letters and were drawn from the thousand most commonly used words for grade school children prepared by Thorndike (16). An attempt was made to avoid emotionally-toned words.

TABLE II—Words Used in Tachistoscopic Experiment

List 1			
field	point	learn	train
sight	shall	voice	state*
build	sleep	white*	mouth
heart	large*	house	sweet
sound*	drive	found	young
serve	great	cross	piece
List 2			
short	round	reach	bread
green	horse	since	state*
laugh	might	white*	teeth
bring	large*	first	child
sound*	plant	fresh	earth
north	watch	leave	black

*Control words used to minimize accommodation to color in chromatic presentations.

The speed with which each word was recognized was recorded as well as the mistaken identifications. After all the words in both lists were presented, the subject was asked to recall the words previously presented. He was not prepared for this recall at the beginning of the presentation. The words that were recalled were listed in ten-second intervals in order to have a measure of the speed of recall. The four words used to minimize accommodation to color were not counted in the scoring.

2. *Object Memory.* This task consisted of two comparable forms of a twenty-item object memory test (6, p. 61-64). Each form was reproduced on a white background (achromatic) and a red background (chromatic). The subject was presented with one form on one type of background (achromatic or chromatic) and all the items were named after he was informed that he would be asked to recall as many objects as he could. After one day, the second form on the other background was used. Each form was presented approximately as many times chromatically as achromatically. The recall was recorded in ten-second intervals.

3. *Block Designs.* The block design subtest from Form II of the Wechsler-Bellevue (17) was used. Blocks and designs were made in black and white (achromatic) and red and white (chromatic). The yellow and blue were not reproduced. Form II designs were used because many of the subjects had been tested for clinical purposes with Form I of the Wechsler-Bellevue. All subjects received both sets of designs, with one day intervening. Performance was scored according to the Wechsler-Bellevue scoring criteria.

4. *Design Naming.* The substitution test of the Babcock-Levy Scale of Mental Deterioration (1) was used for the design naming task. This was prepared on a white background (achromatic) and on a red background (chromatic). The speed with which the subjects named the geometric designs was recorded as well as the number of mistakes made.

5. *Free Association.* The subject was asked to fixate his attention on a blank white card (achromatic) and on a blank red card (chromatic) and

[1] Inasmuch as there were 39 subjects, this meant that 20 subjects were presented the task in one order and 19 subjects in the other order. This applies to all of the tasks.

to name as many words as he could. He was allowed to associate to each card for one minute. Each word was recorded in the ten-second interval in which it appeared.

Thus, every task was presented to each subject chromatically and achromatically. With the exception of the tachistoscopic task, which was presented at one sitting, the other four tasks were presented in two sessions, one day apart. The chromatic tasks were presented at one session and the achromatic at the other. Approximately half the subjects received the chromatic tasks first. Individual Rorschachs were administered within two weeks of the experimental tasks, either before or after.

The measures used both for the Rorschach factors and the experimental tasks were *the difference scores between performance on the chromatic and achromatic situations.* Thus, for the Rorschach factors, the measures were the differences between performance on the five chromatic and five achromatic cards. In all instances, the measures were computed from the formula score on chromatic minus score on achromatic. The algebraic signs were considered in all computations.

Hypotheses

The following hypotheses were postulated relative to the proposition that the impact of color on the Rorschach is related to the impact of color on perceptual and associative tasks:

1. The number of Rorschach responses has been described as a measure of " . . . the wealth and pliancy of the associative processes" (9, p. 120). It was therefore predicted that the difference between the number of Rorschach responses on the chromatic and achromatic blots would be *positively* related to

(a) the difference between the number of words recalled from the chromatic and achromatic tachistoscopic presentations,

(b) the difference between the number of objects recalled from the chromatic and achromatic presentations of the object memory task,

(c) the difference between the number of words on the chromatic and achromatic free association task.

While the first two experimental measures are measures of memory function, it was assumed that ease of recall would be related to ease of association. Thus, it was predicted that more responses to the Rorschach color blots would be associated with greater recall on the chromatic tachistoscopic and object memory tasks and with more words associated on the chromatic free association task. The converse was also predicted.

2. Since the percentage of responses given on the last three Rorschach cards is used clinically as an index of the impact of color, this Rorschach measure was also predicted to be *positively* related to the three experimental measures described above. The VIII, IX, X% was used rather than a difference score inasmuch as the latter would be the difference between VIII, IX, X% and a constant, i.e., 30% which would be the theoretical expectation if the last three cards were achromatic.

3. Reaction time for the first response to each blot on the Rorschach has been described as an indication of the extent to which the " . . . wealth and versatility of associative processes quickly supplies response possibilities." (9, p. 128). It was therefore predicted that the difference between the mean reaction times to the chromatic and achromatic Rorschach blots would be *positively* related to

(a) the difference between the mean recognition times for words presented on the chromatic and achromatic tachistoscopic experiment,

(b) the difference between the mean intervals of recall for words pre-

sented on the chromatic and achromatic tachistoscopic experiment,

(c) the difference between the mean intervals of recall for objects presented on the chromatic and achromatic object memory task,

(d) the difference between the mean intervals in which the words were given on the chromatic and achromatic free association task,

(e) the difference between the speeds on the chromatic and achromatic forms of the design naming task.

The common denominator in each of the above experimental measures and in reaction time on the Rorschach is presumed to be the speed of response. Thus, it was predicted that a quicker response to the Rorschach color blots would be associated with quicker responses on the chromatic experimental tasks. The converse was also predicted.

4. F+% on the Rorschach has been described as a measure of the extent to which there is " . . . strict critical assessment of the degree of congruence between the possibilities offered by the associative processes and the formal articulations of the area" (9, p. 192). It was therefore predicted that the difference between F+% on the chromatic and achromatic Rorschach blots would be *inversely* related to

(a) the difference between the number of guesses on the chromatic and achromatic tachistoscopic presentations,

(b) the difference in the number of mistakes made on the chromatic and achromatic design naming task.

These two experimental measures were presumed to be measures of "critical assessment." Thus, it was predicted that higher F+% on the Rorschach color blots would be associated with fewer guesses on the chromatic tachistoscopic recognitions and with fewer errors on the chromatic design naming task. The converse was also predicted.

5. F% has been described as reflecting the " . . . processes of formal reasoning which should pursue their course without anxiety and affects intruding into and disrupting them" (9, p. 189). Implicit in this response is the capacity for delay. It was therefore predicted that the difference between F% on the chromatic and achromatic blots of the Rorschach would be *inversely* related to the same experimental measures as would F+%.

6. The whole response on the Rorschach has been described as representing the " . . . abstracting, surveying, and integrating abilities of the subject" (9, p. 138). It was predicted that the difference between W% on the chromatic and achromatic Rorschach blots would be *positively* related to the difference between the chromatic and achromatic block design task which is also presumed to measure the conceptual capacities of the subject (5). Thus, it was predicted that higher W% on the Rorschach color blots would be related to higher scores on the chromatic block design task. The converse was also predicted.

Results

The method of statistical analysis was the Pearson product-moment correlation. Table III is a summary of all the results.

1. *Number of Responses*

Of the three relationships predicted from the difference between the number of Rorschach responses on the chromatic and achromatic blots, one (the difference between the number of words on the chromatic and achromatic free association task) is significant at the one per cent level. Another predicted relationship (the difference between the number of objects recalled from the chromatic and achromatic presentations of the object memory task) approaches significance at the ten per cent level of confidence.

TABLE III—Predicted Relationships Between Rorschach Factors and Experimental Tasks

Rorschach Factor	*Experimental Task*	*Experimental Measure*	*r*	*P*
1. Number of responses	Tachistoscope	Number of words recalled	−.08	>.10
	Object memory	Number of objects recalled	.28	.10
	Free association	Number of words associated	.45	.01
2. VIII, IX, X%	Tachistoscope	Number of words recalled	−.09	>.10
	Object memory	Number of objects recalled	.40	.01
	Free association	Number of words associated	.15	>.10
3. Reaction time	Tachistoscope	Mean recognition time	.43	.01
	Tachistoscope	Mean interval of recall	−.03	>.10
	Object memory	Mean interval of recall	−.17	>.10
	Free association	Mean interval of association	−.38	.05
	Design naming	Number of seconds	.06	>.10
4. F+%	Tachistoscope	Number of guesses	−.08	>.10
	Design naming	Number of mistakes	.27	.10
5. F%	Tachistoscope	Number of guesses	−.17	>.10
	Design naming	Number of mistakes	.14	>.10
6. W%	Block design	Wechsler-Bellevue raw score	.38	.05

The predicted relationship between the difference in the number of Rorschach responses on the chromatic and achromatic blots and the difference in the number of words recalled from the chromatic and achromatic tachistoscopic presentations is not significant.

2. *VIII, IX, X%*

Of the three relationships predicted between VIII, IX, X% and the differences in the chromatic and achromatic experimental tasks, one is significant at the one per cent level. This is the difference between the number of objects recalled from the chromatic and achromatic presentations of the object memory task. The predicted relationships with the two other experimental tasks are not significant.

3. *Reaction Time*

Of the five predicted relationships between the difference in mean reaction times to the chromatic and achromatic Rorschach blots and differences in the chromatic and achromatic experimental tasks, two are significant. The difference in mean reaction time between the achromatic and chromatic Rorschach blots is significantly related to the difference between mean recognition times for words presented on the chromatic and achromatic tachistoscopic experiment at the one per cent level. The other significant relationship is with the difference between the mean intervals in which words were associated on the chromatic and achromatic free association task (five per cent level). This relationship, however, is in the direction opposite to that which was predicted. The other three predictions were not significant.

4. *F+%*

Of the two relationships predicted between the difference in F+% on the chromatic and achromatic Ror-

schach blots and the differences in the chromatic and achromatic experimental tasks, one approaches statistical significance at the ten per cent level. This is the relationship with the difference between the number of mistakes on the chromatic and achromatic design naming task. This result, however, is in the direction opposite to that predicted. The second prediction was not supported.

5. *F%*

The two relationships predicted between the difference in F% on the chromatic and achromatic Rorschach blots and the difference in the chromatic and achromatic experimental tasks are not significant.

6. *W%*

The prediction between the difference in W% on the chromatic and achromatic Rorschach blots and the difference between the chromatic and achromatic block design task is significant at the five per cent level of confidence.

Discussion

These findings seem to offer support for the Rorschach proposition that color does have an impact on the perceptual and associative processes. In interpreting the results of this experiment, several factors must be considered. First, it should be noted that the Rorschach blots do not permit the measurement of a response exclusively to color. In considering any of the color blots of the Rorschach, there are present such stimulus properties as shape, brightness, discreteness, shading, etc., in addition to color. Thus, the measure of color impact on the Rorschach used in this experiment, i.e., chromatic minus achromatic, must be viewed as a rather gross measure of color responsiveness, since it is contaminated by these other stimulus properties. Second, the assumption underlying the measure chromatic minus achromatic is that the achromatic blots were essentially neutral stimuli, an assumption which is subject to serious question. It is known that the achromatic cards themselves are capable of an impact on associative and perceptual processes. This impact frequently demonstrates itself in the phenomenon of "dark shock." Thus, the measure used in this experiment, i.e., chromatic minus achromatic, did not control for this possible impact produced by the achromatic cards. Third, it should be noted that there are wide differences in the ability of different tasks to elicit specific responses. Thus, color may readily produce an impact on perception and association on tasks which are relatively complex such as the Rorschach, the tachistoscopic recognition task and the block design task. On the other hand, more routine and less intellectual-demanding tasks such as design naming may be less capable of demonstrating the impact of color. It is even conceivable that excitation as a function of color in one type of task may correspond in the same subject to inhibition as a result of color on another task. This may in part explain two of the findings which were not in the expected direction but which nevertheless suggest that individuals who are deviant in their behavior on one type of color task tend to be deviant in their behavior on another color task, although the direction of deviation differs. Such differences in the ability of the tasks to elicit a response to color would then contribute to lessening the probability of obtaining significant relationships in a study such as has been reported. Fourth, the study did not evaluate color impact on the Rorschach in terms of a global criterion but rather in terms of specific, discrete indices, i.e., F+%, W%, etc. Since one subject may demonstrate color impact in terms of reaction time, a second subject in terms of number of responses, etc., dealing with a discrete manifestation of color impact would ignore the manifestations of impact on other indices. The use of a global measure would there-

fore be a more adequate measure of color impact than would a series of discrete Rorschach factors. Finally, it should be noted that this study did not deal with *all* manifestations of color impact, i.e., rejections, peculiar verbalizations, popular responses, etc.

In spite of these limiting conditions, each of which has undoubtedly contributed to obscuring relationships, three of the relationships are significant at the one per cent level, two are significant at the five per cent level, and two approach significance at the ten per cent level of confidence. These findings are in excess of what would be expected by chance. It therefore is our conviction that the study does offer support for the proposition that color on the Rorschach does have an impact on the perceptual and associative processes.

SUMMARY

This study tested the assumption that color on the Rorschach has an impact on the perceptual and associative processes. The subjects were 39 mental hospital patients selected at random. Five tasks measuring a variety of perceptual and associative processes were prepared in two forms: chromatic and achromatic. Of the sixteen relationships between the Rorschach factors (number of responses, VIII, IX, X%, reaction time, F+%, F%, and W%) and the perceptual and associative tasks studied, seven were significant or approached significance, although two of these relationships were not in the expected direction. The number of significant findings in the context of the limitations of the study are offered as support for the assumption that color on the Rorschach has an impact on the perceptual and associative processes.

REFERENCES

1. Babcock, H. and Levy, L. *The revised examination for the measurement of efficiency of mental functioning.* Chicago: Stoelting, 1940.

2. Benton, A. L. The experimental validation of the Rorschach Test. *Brit. J. Med. Psychol.*, 1950, *23*, 45-58.

3. Dubrovner, R. J., Von Lackum, W. J. and Jost, H. A study of the effect of color on productivity and reaction time in the Rorschach Test. *J. clin. Psychol.*, 1950, *6*, 331-336.

4. Fortier, R. H. The response to color and ego function. *Psychol. Bull.*, 1953, *50*, 41-63.

5. Goldstein, K. and Scheerer, M. Abstract and concrete behavior: An experimental study with special tests. *Psychol. Monogr.*, 1941, *53*, 1-151.

6. *Handbook for clinical psychologists.* Washington, D. C.: War Department, 1944.

7. Lazarus, R. S. The influence of color on the protocol of the Rorschach Test. *J. abn. soc. Psychol.*, 1949, *44*, 506-516.

8. Rabin, A. I. and Sanderson, M. H. An experimental inquiry into some Rorschach procedures. *J. clin. Psychol.*, 1947, *3*, 216-225.

9. Rapaport, D., Gill, M. and Schafer, R. *Diagnostic psychological testing, Vol. II.* Chicago: Year Book Publishers, 1946.

10. Rickers-Ovsiankina, M. Some theoretical considerations regarding the Rorschach method. *Rorsch. Res. Exch.*, 1943, *7*, 41-53.

11. Rorschach, H. *Psychodiagnostics.* New York: Grune and Stratton, 1949.

12. Sappenfield, B. R. and Buker, S. L. Validity of the Rorschach VIII, IX, X per cent as an indicator of responsiveness to color. *J. consult. Psychol.*, 1949, *13*, 268-271.

13. Sarason, S. B. and Potter, E. H. Color in the Rorschach and Kohs block designs. *J. consult. Psychol.*, 1947, *11*, 202-206.

14. Schofield, W. Research in clinical psychology: 1949. *J. clin. Psychol.*, 1950, *6*, 234-237.

15. Siipola, E. M. The influence of color on reaction to ink blots. *J. Pers.*, 1949-50, *18*, 358-382.

16. Thorndike, E. L. *The teacher's word book.* New York: Columbia University, 1921.

17. Wechsler, D. *The Wechsler-Bellevue Intelligence Scale, Form II: Manual for administering and scoring the test.* New York: Psychological Corp., 1946.

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Rorschach's Experience Balance: The Concept, General Population Characteristics, and Intellectual Correlates [1]

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The concept of Experience Balance (EB) has received scant attention in Rorschach research relative to its central position in Rorschach's theory of personality (17). Hertz' studies on adolescents (8, 9), in which most earlier studies are reviewed, remain the most extensive investigations. However, current interest in the EB has been revived by several brief studies (4, 6, 7). The many attempts to study the component parts of the EB ratio (M and Sum Color) separately preclude an understanding of the interrelationships which Rorschach posited between these scores. One obstacle to the study of the EB ratio is that it has been difficult to handle statistically. A proposal for quantifying the parts of the EB into one score is offered here. More basically, the EB concept needs re-examination and restatement. Beck, after a concise summary of Rorschach's original discussion, concludes, "For all this, it remains a vague concept, not yet concrete enough to use as an interpretative test factor" (2, p. 61).

THE CONCEPT

Rorschach discussed the EB in many terms: as concrete test scores, as specific overt behavior, as personality traits and types, and as emotional functioning and perceptual processes (as if all these phenomena were easily related). At the risk of violating Rorschach's original concept, several aspects of this construct will receive clarification in the present study.

The concept as a test term. For Rorschach, the EB was embodied in the very response to the inkblot; *e.g.*, a predominance of M over Sum C was *per se* intratension. Rorschach also emphasized that the EB was not the entire psychogram but that the ratio of M to Sum C must be considered in the light of the number and nature of the other responses. Without accepting Rorschach's assumption of behavior-score equivalence, an exploratory study perforce begins with a definition of EB merely as specific test behavior. (See further discussion of quantification below.)

The concept as a behavioral referrant. As a possible frame of reference for relating this specific test behavior to other samples of the individual's functioning, several essential points in Rorschach interpretation need reemphasis. First, despite Rorschach's use of trait terms, the EB states a relationship between functions or *processes*—not types or static traits. Intratension, for example, is the *process* in which the individual emotionally perceives a situation on the basis of his inner life. Intratension is thus postulated as a perceptual function common to all individuals. A second feature of Rorschach's concept is that it deals with *perceptions*—not reactions.[2] EB for Rorschach was a mode of experiencing, *Erleben,* not necessarily of living, *Leben.* For many Rorschach

[1] Prepared while the author was Instructor in Medical Psychology, Washington University School of Medicine, St. Louis. Except for the section on intelligence, presented in brief at the 1952 meeting of the Midwestern Psychological Association.

[2] To rigorously distinguish perceiving from responding is operationally difficult. Bruner and Postman argue that although we can know the perception only from the response, it is possible to "infer perceptual or cognitive organization from the responses . . . " (3). One of Rorschach's assumptions is that in using unstructured materials as stimuli the process of perceiving is more directly observable.

users this is perhaps the most difficult point in Rorschach interpretation to understand and, consequently, the most frequently violated. In fact, Rorschach himself, in his own discussion, often seems to confuse perceiving with reacting because he also hoped to predict specific reactions from a general mode of perception.

The third element of the EB is that it refers to *emotional* perception, *i.e.*, perceptions formed on the basis of emotionally-toned contacts or stimuli. Here a distinction is made between either affective reactions or the awareness of affect and the use of an affect-loaded experience as a stimulus for the perception of yet another situation or experience. Thus intratension refers to perceiving a situation *on the basis of* such stimuli as dreams, fantasies, personal attitudes, identifications, memories—but not to the subjective state itself. M in a Rorschach record indicates not merely that the subject daydreams—all men daydream — but that the subject's perceptions of other situations are likely to be formed partly on the basis of his daydreams. Similarly, extratension is not the concept commonly used in personology but is, again, a process of perceiving: on the basis of emotional interaction with the environment. Color implies that the person depends upon emotional brushes with his environment for his understanding of it—not merely that he reacts with emotion. In some instances, a person comprehends the situation only by being angered, exhilarated, saddened, etc. Commonly, such emotional experiencing consists of interpersonal interactions.

Since this reduction of Rorschach's EB to processes of perceiving does some injustice to the richness of personality description which he derived, some account must be made of the manner in which the two chief modes of perceiving are related. A popular concept is that intratension and extratension are opposites. Acknowledging the frequent conflict of attempting to reconcile multiple emotional stimuli, Rorschach maintained that these two general modes were more frequently complementary and that they interact upon one another. This integration may be understood best in the development of the individual. Assuming a differential growth process in personality development, what perhaps begins as a single process of receiving stimuli gradually separates out into two or more modes of experiencing. This concept of emotional perceiving may be part of the broader concept of the development of the ego in which the self is separated from the environment, as posited in psychoanalytic theory.

To summarize: EB for the immediate purpose of exploratory research refers only to the difference between the number of movement and the "sum" of color responses, proportional to the total number of responses. The hypothesis is advanced that this score is related to a broad general pattern of emotional perception. Specifically, when movement predominates over color, the individual's method of perceiving situations is expected to be formulated on the basis of his inner life. When color predominates over movement, it is predicted that perceiving would be colored by emotional interactions with the environment. When color and movement are relatively equal, perceiving based equally on both types of stimuli, either in an integrated or conflicting manner, is hypothecated. When the individual uses neither determinant, it is predicted that he ignores, or is for some reason incapable of using, either source of emotional stimuli.

PROCEDURE

The sample. For purposes of general normative data, the Rorschach records of all subjects eighteen years or older who gave ten or more responses were drawn from the files of two psychiatric treatment centers where the test is given routinely: Washington University Clinics (186 white males, 119 white females) and Homer G.

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Phillips Hospital (50 Negro males, 73 Negro females).[3] A third sample consisted of 150 adult white males studied as control subjects in another research project (12).[4] Although formal diagnoses were not available, no known cases of brain damage were included; obvious cases of acute or chronic psychosis were rare among the white group but the Negro sample was more heterogeneous, about half the cases being acutely psychotic. None of the controls had considered themselves ill enough to require psychiatric care at any time.

Scoring criteria. Very frequently the results of research utilizing the Rorschach may be questioned because of doubtful or unexplained administrative and scoring procedures. In the present study an exhaustive though indirect inquiry to each response was the basis of the assigned score. Where use of color was suspected, the subject was asked, e.g., "What about the card suggested this? What made it look pretty (or fiery, oriental, etc.)?" If, after one or two such questions, the subject did not specify color, the inquiry was dropped for that response. Only when the subject definitely identified the bright color as an integral part of his response was color scored. Human movement was established through such questions as, "How does it seem? In what way does it appear?" This inquiry was not pressed beyond the first two or three human or human like responses. M was scored only when the subject voluntarily attributed some definite action to a human figure beyond a position or facial expression.

In this research, neither responses volunteered during the inquiry nor secondary determinants were included. If two or more stimuli were indicated as determinants, movement or color was given scoring priority. If only part was seen as colored, color was not scored as a main determinant and was thus omitted from the EB. If the part colored was seen as a definitely separable section of a larger concept, two responses were scored, with color as the main determinant of one.

Method of quantifying the EB. Rorschach defined his four categories of EB in terms of patterns of raw scores, but without setting any fiducial limits. Of the several scoring methods introduced in previous studies (8, 9, 20), only one coincides with the present research definition:

$$\frac{M-\text{Sum C}}{R}$$

To obviate certain scaling difficulties, this was revised to:

$$100\left[\frac{M-\text{Sum C}}{R}\right]+100.$$

The EB for each record was calculated to the nearest whole number. The distributions for the whole sample

TABLE I—Medians and Quartiles of EB Components and Scores and Frequency of Cases in the Four EB Categories

Group	N	Mdn M/R	Mdn Sum C/R	EB Score Q1	EB Score Mdn	EB Score Q3	Frequency of Cases* E	C	A	I
WM Pt.	186	.070	.120	91	99	105	42	66	31	47
WF Pt.	119	.082	.101	87	99	107	34	34	18	33
NM Pt.	50	.052	.080	86	97	104	15	21	4	10
NF Pt.	67	.048	.112	87	98	104	22	20	10	15
Control	150	.086	.154	89	97	105	38	48	27	37
Total	572	.075	.119	89	98	106	151	189	90	142

*E—Extratensive, C—Coarctate, A—Ambiequal, I—Intratensive

[3] I am indebted to Miss Ruth G. Dixon for these records.

[4] George Ulett and Ann Lawler kindly permitted me to analyze their data for this study.

and for each sub-sample were essentially normal though slightly leptokurtic, and without significant inter-sample differences (see Table I). Cutting scores for the EB categories were established therefore on the basis of the total sample, as follows:

Extratensive (E): all scores below the first quartile, 89 or less.

Intratensive (I): all scores above the third quartile, 106 or greater.

Coarctate (C): all scores between 90 and 105 inclusive, where either M/R was less than the median, .08, or Sum C/R was less than its median, .12.

Ambiequal (A): all scores between 90 and 105 inclusive, where both M/R was .08 or greater and Sum C/R was .12 or greater.

These arbitrary limits do apparent injustice to Rorschach's categories only in records with fewer than fifteen responses. Possibly the EB is underestimated in very long records but it may be argued that such records represent a watered-down EB.

AGE, SEX, RACE, AND PSYCHIATRIC STATUS

Age. The patient sample and the control sample differed in age range and means (total patient age range 20-70, mean 32.14; control age range, 17-36, mean 24.09). The four patient sub-samples did not differ either in range or mean. F ratios calculated between age and EB category were greater than the .05 level for both the patient and control groups. Even when age was considered separately by decade, no EB variation was evident.

Other studies (8, 9, 13) have demonstrated changes of EB during adolescence and again during the later adult years (6). If the EB follows the developmental process found in other major psychological functions, any gross change would not be expected during the early adult years. Hunter (10) also found no relationship between her measure of EB and age among adults.

Sex. As regards possible sex differences, Rorschach said, "The differences are not so large that they demand notice of themselves," but he thought that sex differences might become apparent upon examination of averages of a large number of cases (17, p. 96). In the present study, no significant differences in EB category were found between the sexes on any of the samples (using 2 x 4 Chi Square tables). Hertz (8) cites several studies on children and adolescents indicating sex differences in EB at various ages, and herself reports very significant and interesting differences between boys and girls at ages 12 and 16. From Hays' study (6) it may be concluded that further sex differences occur after age 50. A sex differential in overall growth processes seems indicated rather than a constant sex difference in the EB.

Race. Rorschach was quite insistent that the EB differed in various peoples and races. Although this sample of Negro psychiatric patients is far from representative, the lack of any Negro-white difference in this sample does not add to Rorschach's hypothesis. Hunter (10) concluded that her results supported Rorschach's contention regarding racial differences. Her categories were not quantitatively comparable to those used here and no comparison is possible. Hunter also inquired more directly for color though less for movement, resulting in an excessive number of extratensive records.

Psychiatric status. No differences were obtained between the patient groups and the controls. These results support the impression of various clinicians that the EB is not in itself a pathological sign. This does not necessarily contradict the EB patterns which Rorschach ascribed to various mental disorders, nor did Rorschach use the EB as diagnostically discriminatory. However support is given here to the contention that the EB is a universal psychological function as

distinct from a mere indicator of mental abnormality.

Intellectual Functioning[5]

According to Rorschach, " . . . the intratensive is creative and the extratensive primarily reproductive," and, " . . . in the egocentric extratensive type the logical function is generally found to be rather weak" (17, p. 92, p. 109). Further, "Only a person of the ambiequal type is capable of including all the talents in a single person. In ambiequals, the intratensive talents are more likely to be effective, however" (17, p. 108). Subsequent studies relating intelligence to Rorschach factors have, therefore, concentrated on the human movement response. The relationship between M and intelligence is fairly well established as a positive though low correlation in several populations (1, 8, 15, 19, 21). Neff and Lidz (15) also related color responses to intelligence but their results were inconclusive. In general, the relationship between the EB and intelligence remains unclarified.

Sample and procedure. Results of the Wechsler Bellevue, Form I (WB)

Table II—Significant Differences Between EB Categories on W-B Mean Scores

Groups		Male I E	Male I C	Male I A	Male A E	Male A C	Female A I	Female A E	Female A C
N		33 36	33 46	33 30	30 36	30 46	14 23	14 25	14 28
Info.	d				1.67	1.55			
	t				2.37	2.17			
Comp.	d	2.71	2.20		1.79	2.51			
	t	4.18*	3.42*		2.96*	4.16*			
D. Sp.	d				2.57	2.47			
	t				2.70*	2.83*			
Arith.	d	1.66	2.72		3.06	2.71		3.03	
	t	5.25*	3.11*		2.80*	2.57		2.21	
Simi.	d	2.86	2.99		2.94	3.07			
	t	3.47*	4.06*		3.53*	4.17*			
Voc.	d	1.85	1.52		2.41	2.08			
	t	2.72*	2.42		3.38*	3.18*			
P. A.	d	4.59	2.18	1.49					
	t	6.31*	3.15*	2.01					
P. C.	d	1.95			2.67	2.13	3.48	3.13	2.32
	t	2.70*			3.77*	3.02*	2.83*	3.28*	2.45
B. D.	d	2.01			2.86	2.20	3.32	2.62	2.71
	t	2.43			3.93*	2.85*	3.41*	3.23*	2.78*
O. A.	d	1.73						1.98	
	t	2.32						2.26	
D. Sym.	d	2.37	1.58		2.18				
	t	3.22*	2.30		2.49				
Verbal IQ	d	11.42	11.93		10.71	11.22			
	t	3.48*	3.54*		3.72*	3.77*			
Perf. IQ	d	12.90	10.30		12.25	9.65	16.66	13.31	13.04
	t	3.85*	3.36*		3.62*	3.11*	3.21*	2.24	3.36*
Total IQ	d	12.67	11.86		14.66	13.85	15.92	11.89	13.86
	t	3.87*	3.42*		4.35*	3.89*	3.30*	2.18	3.11*

Note: Differences are in the direction of the first category of the column. All *t*'s are significant at the .05 level; *shows the .01 level. The following comparisons were omitted since no differences approached significance: Female I:E, I:C, E:C and Male E:C.

[5] The data on intelligence were collected and analyzed by Frank R. Strange, then assistant in psychology, Washington University School of Medicine, St. Louis, under the supervision of the author. This section was originally prepared as a separate paper with Mr. Strange as co-author and his contribution can only be partially given appreciation in this footnote.

were available on 145 males and 90 females of the white out-patient sample. (The N varied slightly on some of the sub-scales.) With sex held constant [6] the means of each subtest for the four EB categories, and the mean differences between the four categories, were calculated using Fisher's *t* (See Table II).

Intelligence and EB in men. As shown in Table II, the general superiority of the I group over the E and C groups, and the A group's generally higher average on all subtests when compared with either the E or C groups, support Rorschach's statements regarding intellectual potentiality among intratensives and the "talent" of the ambiequals. The specific pattern of difference, however, warrants detailed examination. As to the I group, the only subtest on which the I's were consistently higher was Picture Arrangement. Although this single finding must be interpreted with caution, it is worth noting that Rapaport, discussing the rationale behind this subtest, remarks, "On the Picture Arrangement subtest, we submit that the subject's achievement is a reflection of his ability to anticipate the consequences of initial acts or situations, and hence is a reflection of his planning ability" (16, p. 217). Significantly, it is the planning, hypothecating, anticipatory nature of the M response which Rorschach emphasizes.

A balance between movement and color appears related to yet other kinds of intellectual endeavor. The A group differs from the I group in that the former is higher than either E or C on Information, Digit Span and Block Design (although the I group is also higher than E on the last subtest). Discussing the Information subtest, Rapaport refers to the "educational environment" of the individual (16, p. 129—Rapaport's quotes), and to his attention and memory of cultural pressures. Likewise in discussing Digit Span, Rapaport emphasized the attention-span and concentration required. These results suggest a marked distinction in intellectual functioning when the type of perception of which color is a part is combined with intratensive perceiving. M may be a fair over-all indicator of general intelligence, but some involvement with the environment appears requisite for attention to, and even retention of, experiential data.

That this balancing effect of color on movement mirrors the effect of emotional participation on pre-experiential attitudes is further accentuated when the meaning of the Block Design subtest is recalled. Rapaport labeled the behavior required for the solution of this task as *reproductive,* separating it into two parts: first a visual organization, an abstract attitude, which must be taken in analysis of the design; second, the execution of this plan of attack through the manipulation of the blocks. Rapaport remarks, "Superiority of visual organization is not always indicative of visual motor *coordination*" (16, pp. 273-274, Rapaport's italics). He continues with a discussion of the need for sufficient "interaction between pattern and block," or, one might infer, between analysis of the situation and the manipulation of the environment. The relationship between ambiequality on the Rorschach and success on Block Design supports the hypothesis that the perception of movement may be a correlate of this abstracting attitude while the perception formed from color constitutes an interaction with the environment. Most important, this result suggests that ambiequality represents a balancing or integrating of these factors.

Intelligence and EB among women. Inspection of Table II shows that the

[6] As Jastak (11) has suggested, there are probably considerably more differences between men and women on the Wechsler-Bellevue than Wechsler originally thought. A study of sex differences on the Wechsler-Bellevue from this sample is reported elsewhere by Strange and Palmer (18).

intellectual advantage which Rorschach posited for intratension does not appear among women, but that the ambiequal women do also achieve higher IQ's. Again a fairly consistent pattern of subtest variation appears, with Block Design high, plus a higher mean Picture Completion score. The superiority of the ambiequal women on Picture Completion serves to further the contention that the combination of M and Sum C represents an interrelationship between conceptualizing and exploring. Borrowing again from Rapaport, this subtest can be said to sample, " . . . an appraisal of *relationships,*" specifically between the "expected picture" and the "inspected picture." (16, p. 231).

In a related study, Hanfmann (5) distinguished two similar attitudes toward abstraction in the solution of the Vigotsky Blocks: the *conceptual,* in which the subject thinks out a solution with minimal handling of the blocks, as contrasted with the *perceptual,* in which the subject arrives at a solution by manipulating the blocks but may not recognize the principle until after solution. Hanfmann noted a definite difference between the sexes in their abstracting attitude: men favored the conceptual, women the perceptual. It may be argued from the present results also that women do not utilize preconceiving in isolation as do men. The men have "big ideas"; women want to know what is "going on" before they accept them.

Emotional perceiving as a factor in intelligence. These results have particular import since emotional functioning is not usually recognized as an attribute of cognition. Indeed, far more research has been devoted to the obvious interference of certain kinds of affect, e.g., anxiety or excitement, on effective problem-solving. Even some Rorschach theorists (2) contend that the indicators of emotional neutrality, form and organization, are the chief, if not the only, factor in intellectual achievement. Rorschach himself was more cautious, suggesting that a lack of both M and color, with a high percent of form, might put a damper on intelligence. In fact, throughout his manual he refers contemptuously to the "pedant" who analyzes with exactness but never creates, imagines, understands or even really solves.

The consistently lower scores on all subtests of the coarctate groups is a strong indication of the positive role played by emotionally toned perception in cognitive functioning. Admittedly, the E group is also consistently lower than A or I and does not differ from C. However, it is not argued that perception based only on emotional contact with the environment suffices for effective problem-solving. An emotional experience lends little to intellectual functioning if no other kinds of perception accompany it. But it is maintained that such emotional experiences are a test of reality to an imagining mind. The emotionally poverty-stricken individual appears also to be intellectually restricted.

Summary

Rorschach's Experience Balance was re-defined in terms of emotional perception. In three samples of adults, the EB scores were normally distributed. Since age changes and sex differences among adolescents and older adults have been demonstrated in other studies, the absence of such differences in the present sample of young adults suggests that the EB follows much the same developmental process as other psychological functions. The absence of a difference between patients and non-patients supports the general opinion that the EB is a universal function rather than a pathological sign. In this sample the EB is not affected by subcultural distinctions between Negroes and Whites. Support is lent Rorschach's assumption of more efficient intellectual functioning of the intratensive group among men, but not among women. The ambiequal Rorschachs of both sexes appear to coincide with

higher intelligence. From this fact, as well as the lower IQ's among the coarctate group, it is argued that emotional experiencing, both within the self and in interaction with the environment, serves to heighten intelligence.

Further studies are being conducted on the EB, as reflected in personal attitudes, reactions to frustration, fantasy content, and the drawing of a person.

REFERENCES

1. Altus, W. and Thompson, Grace. The Rorschach as a measure of intelligence. *J. consult. Psychol.*, 1949, *13*, 341-347.

2. Beck, S. *Rorschach's Test. Vol. II. A Variety of Personality Pictures.* New York: Grune & Stratton, 1945.

3. Bruner, J. and Postman, L. Perception, cognition and behavior. *J. Pers.*, 1949, *18*, 14-31.

4. Fonda, C. The nature and meaning of the Rorschach white space response. *J. abnorm. soc. psychol.*, 1951, *46*, 367-377.

5. Hanfmann, Eugenia. A study of personal patterns in an intellectual performance. *Char. and Pers.*, 1941, *9*, 315-325.

6. Hays, W. Age and sex difference on the Rorschach Experience Balance. *J. soc. abnorm. Psychol.*, 1952, *47*, 390-393.

7. Hays, W., Gellerman, S. and Sloan, W. A study of the relationships between the verb-adjective quotient and the Rorschach Experience Balance. *J. clin. Psychol.*, 1951, *7*, 224-227.

8. Hertz, Marguerite. Personality patterns in adolescence as portrayed by the Rorschach Inkblot Method: III The "Erlebnistypus" (a normative study). *J. gen. Psychol.*, 1943, *28*, 225-276.

9. Hertz, Marguerite. Personality patterns in adolescence as portrayed by the Rorschach Inkblot method: IV. The "Erlebnistyps" (a typological study). *J. gen. Psychol.*, 1943, *29*, 3-45.

10. Hunter, Mary. Responses of comparable white and Negro adults to the Rorschach test. *J. Psychol.*, 1937, *3*, 173-182.

11. Jastak, J. An item-analysis of the Wechsler-Bellevue tests. *J. consult. Psychol.*, 1950, *14*, 88-94.

12. Lawler, Ann, Winokur, G., Gleser, Goldeen, and Ulett, G. The use of a control population in neuropsychiatric research. 1952 (in press).

13. McFate, Marguerite and Orr, Frances. Through adolescence with the Rorschach. *Rorschach res. Exch.*, 1949, *13*, 302-319.

14. Montalto, Fannie. An application of the group Rorschach Technique to the problem of achievement in college. *J. clin. Psychol.*, 1946, *2*, 254-260.

15. Neff, W. and Lidz, T. Rorschach patterns of normal subjects of graded intelligence. *J. proj. Techn.*, 1951, *15*, 45-57.

16. Rapaport, D., Gill, M., and Schafer, R. *Diagnostic Psychological Testing, Vol. I.* Chicago: Year Book Publications, 1945.

17. Rorschach, H. *Psychodiagnostics.* (3rd edit.), New York: Grune & Stratton, 1942.

18. Strange, F. and Palmer, J. A note on sex differences on the Wechsler-Bellevue tests. *J. clin. Psychol.*, 1953, *9*, 85-87.

19. Tucker, J. Rorschach human movement responses in relation to intelligence. *J. consult. Psychol.*, 1950, *14*, 283-286.

20. Vernon, P. The Rorschach inkblot test. *Brit. J. med. Psychol.*, 1943, 89-118, 179-200, 271-291.

21. Wishner, J. Rorschach intellectual indicators in neurotics. *Amer. J. Orthopsychiat.*, 1948, *18*, 256-279.

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A Comparison of High-Accident and Low-Accident Bus and Street Car Operators [1]

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This study was concerned with investigating the extent to which high-accident and low-accident street-railway vehicle operators could be differentiated in terms of psychological characteristics as revealed by the Rorschach Test.

Much research has already been done on the subject of differentiating individuals who have many accidents from those who have few accidents. However, many of the studies have emphasized physical or psychophysical characteristics of accident-prone individuals and have not dealt at all with psychological characteristics. Furthermore, the studies which have been concerned with psychological characteristics are often seriously limited in value. Frequent limitations include lack of control groups, lack of cross-validations, and bias on the part of the investigator. In the present study, an attempt was made to avoid these limitations by using a control group, by making a cross-validation, and by analyzing the data as "blindly" as possible.

In this study, the Rorschach test was administered individually by the writer to each of the subjects. The tests were administered and scored according to Hertz's method (1, 2).

SUBJECTS

First Group. This group consisted of 50 male bus and street car drivers employed by the Cleveland Transit System. Contained in the 50 were 25 high-accident operators and 25 low-accident operators. To be classed as a low-accident operator, the subject must have had a record of no chargeable accidents during the previous year, 1949. To be classed as a high-accident operator, the driver must have had a record of three or more chargeable accidents during 1949. The criterion of three or more chargeable accidents was based upon the judgment of Cleveland Transit System experts in the field of safety and also upon criteria used in previous studies (4, 5).

The extent of operating experience of the drivers in both groups was also controlled. Each operator had at least 1 year and six months operating experience before the beginning of the criterion year. And 5 years was the maximum experience of all drivers, except for one low-accident subject who had 6 years and 1 month of experience.

In selecting the subject, his race was also taken into consideration. The aim was to have, as nearly as possible, equal numbers of whites and Negroes in each group. There were 12 whites and 13 Negroes in the high-accident group and there were 13 whites and 12 Negroes in the low-accident group.

To insure objectivity on the part of the experimenter, all subjects were selected by an official of the Cleveland Transit System. Their accident records were not known to the writer until after the tests were administered, scored, and evaluated.

Cross - Validation Group. This group consisted of 20 male bus and street car operators employed by the Cleveland Transit System. Contained in the 20 were 10 high-accident operators and 10 low-accident operators. The "highs" and "lows" each contained equal numbers of whites and Negroes. Criteria for classification of subjects as "highs" or "lows" were the same as those used for the First Group, and the extent of operating experience was also controlled in the

[1] This paper is largely based upon the author's doctoral thesis (3) at Western Reserve University.

same manner as in the First Group.

FACTOR AND PATTERN STUDY

First Group. After the Rorschachs were administered to the First Group, they were scored and factors and patterns were tabulated for the "highs" and "lows" according to cumulative frequency. There were 136 of these factors and patterns and, in order to conserve space, they are not listed here. They consisted of all the usual quantifiable items found on a Rorschach psychogram plus some additional items. The cumulative per cents for each factor were then plotted on a separate graph with the "highs" and "lows" upon the same coordinate axes. Curves were smoothed by the method of moving averages.

After tabulating and graphing all of the factors and patterns, the next step was the determination of the statistical significance of the differences indicated. The standard error of the difference between proportions was obtained and "t" was thereby computed. The "t's" were computed according to "Student's" distribution.

Any obtained difference was considered significant if "t" was at the .10 level of confidence or better. Weights were then assigned to the items which were significant. The determination of these weights was made according to the procedure for the standardization of interest items which was developed by E. K. Strong.

In addition to these 136 items, the "highs" and "lows" were compared in terms of several other factors and patterns which could not easily be tabulated in a continuous quantitative sequence (e.g., Cards Liked, Cards Disliked, A:H, M:FM, etc.). Instead, they were tabulated according to categories and then the frequencies in each category were compared statistically. Such items did not call for graphic treatment, but the significance of any difference in frequency of responses in any grouping was tested by the computation of the standard error of the difference between proportions and the application of the "t" test of significance as described above. Discriminating items were also weighted according to Strong's method.

Statistical analysis of all the factors and patterns resulted in 50 significantly discriminating items.

Cross Validation. A cross-validation of the above results was then done by attempting to predict into the cross-validation group. Each of the 20 drivers in this second group was given an "accident-proneness" score. This score was based upon the total of each driver's weighted scores on the 50 items found to be significant in the first group. The critical points which were used and the weights which were assigned to each item were the same as those determined in the first group.

The scores, however, occurred in a direction obviously opposite to that which was expected. Not only did the predictions fail to discriminate significantly in the expected direction, but the trend was definitely in the opposite direction.

A further check was then made on the individual discriminating power of each of the 50 items in the cross-validation group. It was found that on 26 of the items, the trend was opposite to the expected direction. On nine of the items, an equal number of "highs" and "lows" fell on either side of the critical point. And the trend was in the expected direction on only 15 of the 50 items. Even then, none of those 15 items could discriminate significantly between the "highs" and "lows" in the cross-validation group.

Discussion. One would have anticipated some distortion of the data as a result of intercorrelations between items and therefore overlapping in predictive function between the items. Admittedly, no compensation was made in this study for these intercorrelations. Thus, it has not been conclusively determined whether the failure to discriminate between the "highs" and "lows" means that high-

accident and low-accident bus and street car drivers actually cannot be differentiated on the basis of frequencies of some of the items which were considered or whether the failure is a result of inadequate statistical procedure. However, the further check on each of the 50 items revealed that not one of them could discriminate significantly between the "highs" and "lows" in the cross-validation group. It therefore appears highly unlikely that any different statistical procedure would have resulted in a reliable means of prediction.

Furthermore, since the validity of the Rorschach as a personality test is thought to depend to a large extent upon interpretations of the interrelationships between the factors, the "factor approach" probably contains serious limitations as a research method. When groups are compared with regard to the frequency of isolated Rorschach responses, it is to be expected that the method might prove to be inadequate and the results inconclusive.

Configuration Study

Introduction. Some writers on the subject of accident-proneness have asserted that there is "an accident-prone personality" or that there are specific personality traits which are characteristic of accident-prone individuals. It was the purpose of this "configuration" study to compare high-accident and low-accident drivers on a number of these traits and to investigate their validity for the prediction of accident-proneness. Performance on the Rorschach Test was to provide the means of comparison.

First, a list was compiled which consisted of virtually all the terms which appeared in the literature on accident-proneness and which were considered by the various writers to be descriptive of accident-repeaters. And next, in order to adapt the list for use in this study, many of the items were then "translated" into terminology suitable for a Rorschach investigation. A term such as "hotheadedness," for example, was considered to be implicit in an item which was, in the present study, called "Sudden Emotional Outbursts." The final list of descriptive terms (configurations) is itemized as follows:

1. (Intellectual Level): Average Intelligence, High Intelligence, Low (Subnormal) Intelligence, Low (Deteriorated and/or Impaired) Intelligence.

2. (Intellectual Functioning): Normal Productivity, Balanced Mental Procedure, Practicality and Common Sense, Emphasis on Meticulousness, Clarity in Thinking, Appreciation of Reality, Normal Intellectual Control, Normal Ambitiousness and Striving, Concentration Capacity, Normal Imaginative Resources, Judgment and Reasoning, Insightful Capacity, Functioning to Capacity, Capacity to Learn, Retarded Reactivity.

3. (Emotional Reactivity): Emotional Responsiveness, Emotional Stability, Normal Self-Assertiveness, Normal Aggressiveness, Hypomanic Trends, Inappropriate Emotional Reactions, Sudden Emotional Outbursts, Egocentricity, Normal Sensitivity to Environment, Contact with the World, Disrupting Conflicts, Feelings of Inadequacy, Cautiousness and Guardedness, Vague Anxiety, Cooperativeness.

4. (Thought Content): Normal Breadth of Interests, Normal Common Thinking, Different Thinking, Deviant Thinking.

5. (Personality as a Whole): Normal Spontaneity, Constraint, Personality Balance, General Adjustment, General Reliability, General Efficiency.

6. (Pathological Conditions): Neurotic Structure, Depressed States, Deep Anxiety, Hysterical Features, Suicidal Features, Manic Features, Obsessive-Compulsive Features, Paranoid Trends, Schizophrenic Trends, Chaotic Sexuality, Psychosomatic Difficulties, Psychopathic Trends.

It will be noted that some of the configurations are phrased in terms of normality and adjustment, while others are phrased in terms of maladjustment and pathology. The assumption, which was derived from the literature, was that the high-accident operators would be judged negatively on the configurations which suggest adjustment and would be judged positively on those which suggest maladjustment. Conversely, according to the literature, it was supposed that the low-accident drivers would be judged positively on configurations suggesting adjustment and negatively on those indicative of maladjustment. The item called "Emphasis on Meticulousness" was the only exception to this general assumption. In this case, the low-accident drivers were supposed to manifest an exaggeration of the trait, whereas the "highs" were not expected to be overly meticulous.

First Group. There were 36 subjects, which included all of the First Group except for six "highs" and eight "lows." It was felt that records with less than 15 responses could not be adequately interpreted for purposes of the configuration study, and therefore it was necessary then to drop 14 subjects who had less than 15 R.

Without knowledge of the subjects' accident rating, the author rated each subject on each configuration. The rating categories consisted of "Yes," "No," and "Questionable." Then, each subject was again rated on the configurations by another judge.[2] These ratings were made independently and without knowledge of the author's ratings. An estimate of "reliability" was then computed for each configuration. A chi-square test was made on each configuration to determine the significance of the difference between chance expectancy and the observed number of times of agreement between the raters. An item was thought to be reliable if P equaled .20 or better (if ½P equaled .10 or better). The ratings of the two judges agreed significantly on all of the configurations.

Next, it was necessary to determine whether the configurations could discriminate between the "highs" and "lows." The ratings which the author made were used in this procedure. The frequency of "Yes" (or "No") ratings in the "high" group was tabulated for each configuration separately. The same was done in the "low" group. The significance of a difference was then determined by computing the significance of difference between proportions.

Only two of the configurations discriminated significantly between the "highs" and "lows." These two configurations were Emphasis on Meticulousness (significant at the .05 level) and Normal Common Thinking (significant at the .10 level). The "lows" emphasized "Meticulousness" more often than did the "highs," and the "lows" were more likely to have "Normal Common Thinking" than the "highs."

The fact that two configurations turned out to be significantly discriminating cannot be thought of as a highly significant result. Over 50 configurations were tested and one should expect over five configurations to turn out significant (at the .10 level or better) by chance alone. It was therefore obviously necessary to make a cross-validation study of the results.

Cross Validation. There were 13 subjects, which included all of the Cross Validation Group except for 3 "highs" and 4 "lows." As in the First Group, 7 subjects were dropped because they gave less than 15 R.

The author rated each subject ("Yes," No," or "Questionable") on the two configurations which were found to be discriminating in the First Group. The significance of the difference between the "highs" and "lows" in frequency of "Yes" (or "No") judgments was determined for

[2] The author wishes to express gratitude to Dr. Marguerite Hertz.

each of the two configurations by computing the significance of difference between proportions. A difference was to be considered significant at the .10 level or better.

There was no significant difference between the high-accident and low-accident drivers on either of the two configurations. In fact, the direction of the difference was the opposite of that which occurred in the First Group.

Discussion of Results. The results showed no significant differences between the high-accident and low-accident operators on any of the personality characteristics which were considered. The results do not support the generalizations, concerning these characteristics, which have often been repeated in regard to personality differences between accident-prone and accident-free drivers and which imply that the two groups manifest consistent differences in these "traits." In drawing such a conclusion, that the generalizations have not been supported, it is assumed that the Rorschach has been a valid instrument for the measurement of the personality characteristics which were considered. But even though it may be accepted that the Rorschach is a valid instrument for the measurement of certain personality characterisitcs, one may still raise the question of whether the Rorschach is an appropriate instrument for investigating personality variables which may be important in accident-proneness. It may be that accident-proneness is related to more "surface" or manifest qualities of the personality rather the "deeper" or latent trends, which one is inclined to emphasize in Rorschach interpretation. If this be so, then biographical information, a social history, and a detailed description of the life situation of the individual in question may constitute a more fruitful approach to the problem of accident-proneness. It is very likely that the Rorschach itself can be interpreted more meaningfully in the light of the biographical information. An integration of test interpretation with historical facts would probably yield a fuller, more nearly complete description of the personality.

Furthermore, an accident is, descriptively speaking, an overt occurrence, a relatively discrete event in the life of the individual responsible for the accident. However, it has been assumed that the accident is related to underlying, more or less consistent personality components. One therefore wonders what changes occur in the individual and/or the environment which cause the latent disposition to be translated into action. And one must also question whether the Rorschach is an instrument which can be useful in measuring and predicting the changes in personality dynamics which may occur before, during, and after an accident.

In any case, however, it can be concluded that the Rorschach, as used in this study, has not thus far provided a means of discriminating between accident-prone and accident-free bus and street car drivers.

Summary and Conclusions

An attempt was made to differentiate high-accident from low-accident bus and street car drivers on the basis of Rorschach factors, patterns, and configurations. Some significant differences were found, but they failed to prove their validity in a cross-validation study.

The results did not support the generalizations which have often been repeated in regard to personality differences between accident-prone and accident-free drivers and which imply that the two groups manifest consistent differences in these "traits."

It can be concluded that the Rorschach, as used in this study, has not provided a means of discriminating between accident-prone and accident-free bus and street car drivers.

REFERENCES

1. Hertz, Marguerite R. The scoring of the Rorschach Ink-Blot method as developed by the Brush Foundation. *Rorschach Research Exchange*, 1942, *6*, 16-27.

2. Hertz, Marguerite R. *Frequency tables for scoring responses to the Rorschach Ink-blot Test.* (3rd Ed.) Cleveland: The Press of Western Reserve University, 1951.

3. Miller, Carmen. A comparison of personality characteristics of high-accident and low-accident bus and street car operators. Unpublished doctor's dissertation, Western Reserve University, 1952.

4. Ronis, L. A study of characteristics differentiating bus drivers who have accidents from those who do not have accidents. Unpublished master's thesis, Western Reserve University, 1950.

5. *The accident-prone driver.* Bureau of Public Roads (Part 6 of House Document No. 462, *Motor-Vehicle traffic conditions in the U. S.*) Washington: Govt. Printing Office, 1938.

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A Contribution to Our Knowledge of the Validity of the Rorschach

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The writer has long been of the opinion that the most convincing measure of the validity of the Rorschach would be a comparison of Rorschach interpretations with detailed case studies of the same individuals based on data obtained from other sources. It has been my good fortune to have access to data which permit making such comparisons for one Rorschach record. This Rorschach record is one of a number of Rorschachs of teachers which were gathered in the course of a study of teacher personality. In this particular instance Miss K, the teacher, was not only observed in her teaching, but was also seen in ten therapeutic interviews, and reports on her were available from the principal of the school in which she taught and from one of her supervisors. From these several contacts, but particularly from the interviews which permitted an exploration of some of the underlying dynamic factors in her personality, a detailed descriptive and analytic personality report was prepared which served as the criterion against which the Rorschach interpretations could be compared.

In the course of trying to find a competent individual to score and interpret the Rorschachs which had been collected in the study, seven individuals were tried out before one was found who had the required skill and insight and also had the time to devote to the subject. Each of these seven individuals interpreted the Rorschach of Miss K, so that the present report on validity includes not only a comparison of the seven interpretations of this one Rorschach with each other, but also a comparison of each with the independent case study of Miss K.

In giving the assignment to the seven individuals whose Rorschach interpretations constitute the data for this study, it was emphasized that what was wanted went considerably beyond the typical clinical Rorschach report. The directions given to these Rorschach analysts were essentially as follows: "What I want first is the scoring of the record and a tabulation of the signs and determinants that go into the Rorschach profile. Then I want the essential facts of personality structure that can be obtained from the formal factors on the Rorschach and any dynamic interpretations that can be made from content and sequence analysis of individual responses. In addition, I shall like to have you indicate the factors in the Rorschach which serve as the basis for each interpretation or conclusion drawn."

This last requirement was somewhat unusual and made the task of Rorschach interpretation more exacting than it usually is when prepared as a clinical report.

The interpretations were to be made "blind" with only the following information supplied: Miss K, age 27, single, catholic, a teacher of unified studies (English and Social Studies) in junior high school.

A brief description of these seven Rorschach judges (as they will be called) is given at this point:

Judge A—This man, a former student of Klopfer, has been in the Rorschach movement since its early days in this country. He is the author of a manual on the Rorschach and of several technical papers.

Judge B—A member of the Rorschach Institute since 1949, received her initial training in the Rorschach with Margulies, supplemented by subsequent study and supervision under

Piotrowski and Halpern. She has been associated with C.C.N.Y. and Bellevue Hospital and the New York Consultation Center. She has a certificate in Clinical Psychology from C.C.N.Y. and is a doctoral candidate at the New School for Social Research.

Judge C—Trained under Piotrowski and a member of the Rorschach Institute since 1952, she departs from her original Rorschach instruction by using her psychoanalytic knowledge. She has had experience at the Youth Consultation Center and the Psychiatric Institute, but is now engaged in private psychoanalytic practice. She has a master's degree from Columbia.

Judge D—A student of the Rorschach under Piotrowski. She became a member of the Rorschach Institute in 1951. She is Senior Psychologist at Grassland Hospital and a candidate for the doctorate at NYU.

Judge E—Has a doctor's degree from NYU. He has studied with Piotrowski and has been on the psychological staff of Bellevue Hospital.

Judge F—He obtained his original Rorschach training from Klopfer, Monroe and Kemple at C.C.N.Y. and has a doctor's degree from NYU. Now on the staff of High Point Hospital with prior experience at Cornell Medical College, New York Hospital and at the Post Graduate Center for Psychotherapy. He is a member of the Rorschach Institute since 1949.

Judge G—She has studied the Rorschach under Piotrowski with experience at the Vanderbilt Clinic and Bellevue Hospital. With the master's degree from Columbia, she is now a candidate for the doctor's degree at NYU. A member of the Rorschach Institute since 1949.

The protocol of Miss K's Rorschach is given at this point.

RORSCHACH OF MISS K

32″ I. 1. The first thing, as soon as you handed it to me, I thought it was a historical figure, you know, like Louis XVIII. The two men with the hats and faces. I don't know what they are holding. You know like you usually see in front of monuments, like the eighteenth century monuments. Looks like two men there, like two faces.	1. The upper right hand large detail is seen as a figure with a hat, a face and carrying a plume. The hat Columbus wears — two plumes in front of hat.
31″ 2. And I say this is a priest, like the back of a priest, although he doesn't have his hat on. His collar is high, and his hands are in the air. That's this part. You know, how you see up on the altar. Two men.	2. A priest at the altar with hands in the air saying service.
23″ 3. And—ah—I see a part of a woman, this part, you know, with nothing on, just the bottom part.	3. The lower inside shaded portion is the outside of a woman's hips and legs from the waist down.
30″ 4. I see a dog. This is the figure of two people, the eye and the nose sticking out and the bushy hair. Another face, the eyebrows and two eyes, and some funny thing on their head.	4. First seen as a dog, later seen as a jester with an eye and a nose and bushy hair.

5. You know, the two men I was telling you about. They are sort of plumes, you know, those big plumes, they might be carrying one like that. That's all.
2'48"

5. Repetition of No. 1.

12"
II. 1. This looks like two animals, two baby bears or something with long ears, maybe two dogs, puppies. Here, these look like two dogs with their hands up or their paws. I can't make out anything with these red things.

II. 1. Two baby bears or puppies crouching with their hands together.
1a. Two women with legs crossed under them, hands in back, with negro features. This is the upper red portion. The color has nothing to do with it. They have black kinky hair, big noses and puckered lips.

44"
2. (I don't know.) Would you say, like a floral piece, like bleeding hearts, what you expect to see at wakes, and that's the stands that they are usually on.

2. It is the shape of a floral piece, also on a stand, such as one sees at a funeral or wake, partly the color.

22"
3. I can't see it very well. It looks like eels, seals rather. You know.
2'9"

3. The upper red.

5"
III. 1. Those look like stick figures. You know, little ones, playing around. These are two ballet dancers swimming—people swimming through the water.

III. 1. Little boys with white collars and shoes, or woman with the wind blowing.

30"
2. I don't know—these red spots in here, like something you see in Walt Disney. Two figures—two dancing or two flying girls, with light underneath them.

2. The upper red is seen as ballet dancers swimming through the water. The long red is the legs, and there is the curve in the back. The color is not part of it.

46"
3. These look like two animals sticking out of their—two squirrels. I say, two squirrels.

3. Lower black detail is seen as the outline of squirrels.

43"
4. This way it looks like two negro heads. Two negro heads.

4. The lower middle detail seen as two negro heads with black kinky hair. They look like babies or children. The blackness of their hair helps to give the effect.

27"
5. Two rabbits, these two are two rabbits with their ears thrown back, like running. They all look like animals to me.

5. Still upside down, two rabbits. The noses are pointed out, and the ears are thrown back.

21"
6. This looks like a pitcher's mitt.

6. Just the outline of a pitcher's mitt.
6a. A drop of blood, the upper red figures.

28"
7. This looks like something screaming, I don't like to look at them. Like something horrible, just terrible, like tragedy. I don't know, like someone is—ah—screaming, with their heads tossed back, and there the red

7. The upper red again. The lower extension on the right is seen as a face, as though someone was screaming, the whole thing gives me the impression of tension.

makes it look as if there is blood. I am really straining to find these things, they're not obvious to me. You know, some people can look at them right away, immediately, I can't see them, it's not obvious, that's all.
4'10"

8"
IV. 1. This looks just like the pelt of an animal, a pelt, you know, out this way, hanging up, for a fur coat.

IV. 1. The pelt of an animal because of the shape. It has the rough irregular outline that an animal's skin would have.

21"
2. (Can I turn them around?) This looks like a bat. I say, the whole thing looks like a bat, really, especially that way. I don't see anything, but I don't like to look at these things, to tell you the truth. Just a bat, and I can see –

2. Bat, I don't think, it looks like a bat. It is sinister because of the colors, the grey and the black.

56"
3. This looks like one of these little dogs, you know, the white ones, with the fluffy noses up in the air, and the hair, and that is a little tail – sitting there I should say, it looks like the pelt of an animal –
2'20"

3. Little fluffy dogs with turned-up noses and white fluffy hair. This plate is very ugly.

9"
V. 1. I thought that looked like a bat, but this looks more like the bat. That looks like the pelt of the animal.

V. 1. The shape of a bat.

10"
2. It might be a butterfly. Something in flight.

2. A butterfly in flight.

17"
3. Like part of a leg, a woman's leg.
14"

3. 4. This is seen as a part of a tableau. At the top is seen the profile of a face. This is thought to be a lady lying down. Lower on the slope is the outline of a baby. At the top is the profile of a face and then the baby's body stretches out into the legs. The top face is thought to be the face of the lady holding the baby.

4. This looks like a face, someone seems to be lying down, you know a face, like someone in back here, and that's the two faces, the eye and a nose.

27"
5. I would say this is a person. One of those dolls again, those little dolls with the legs out – you can't see if she has a leg – and that's like a rabbit in costume. I can't get an overall pattern. You see that doesn't look like a bat now to me that I look at it again. It doesn't. The two legs there. Two legs. You see, the bat should be that way. Now that doesn't look like it. That looks like a person there, and that's a figure, a profile.
2'46"

5. Doll in costume that is lying down with the legs spread out.

46″

VI. 1. That looks like some sort of an animal with whiskers. Why do they have doubles of everything, just as if it's open, isn't it?

1′23″

VI. 1. The upper extension is seen as an animal. There are the face and the eyes and whiskers. The outline of the animal is the inner black.

12″

VII. 1. This looks like two girls to me with their hair back, and that's the bustle back, flowing hair. Two girls looking for something, both running in opposite directions. That looks to me like two girls.

VII. 1. Two girls in motion.

31″

2. And this looks like two persons, two faces with great big knots in the back, very ugly people, old people, two old gossipers—that's what it looks like to me—talking.

2. The usual faces described as ugly old people talking to each other.

46″

3. This looks like an animal, see the nose there and the mouth and the eye, an animal in that part. And that looks like that—a woman, I guess. This I don't mind looking at. And that is the two girls in flight.

3. An animal. I can see the nose like a pig, just the outline. This is the lower detail.

43″

4. This is the way I imagine, like sort of a heavenly picture, you know, like the heavens up in the sky, like you usually see in church, like the domes, the cloud formation.

4. Also the lower detail seen as a cloud formation.

16″

5. And right here you can almost see a face like one of the angels, you know, how you usually see, very billowy in clouds, in white, up in the air.

2′43″

5. A small detail seen as St. Peter or some celestial figure. There is the hair and the eyes and the mustache. This is seen only on the left hand figure upside down and is determined in part by the inner shading.

6″

VIII. 1. Well, these are two bears right there that are climbing up.

VIII. 1. The two bears have their heads low.

27″

2. I get the feeling of a crocodile in here. Can you see that? A crocodile.

2. The long inner central line.

31″

3. Now I know you can't see this, but I see this. Like—like two women. Now you see, to me—you can't see it—it's not plain, but it represents someone crying, in the distance, and then again it looks like a—see the flowing hair. I mean just in the distance as if someone was crying in the distance—as a matter of fact, way back. I know you can't see that, but you might be able to see it. I mean like it is another person. I know it's not obvious at all to you, but that is what it looks like to me. Like someone sitting down, and you can just see all the hunch at the

3. The lower pink and orange. It looks like women because of the posture and the way their backs are bent.

back of them and their hair, and they're all in a heap like.

1'38"

4. (I can't make anything out of this blue.) This grey could be sort of—I imagine—a fish formation, you know, those fishes that have a lot of – no, I guess not, I don't know.

3'6"

4. This is seen as fish in motion, swimming.

56"

IX. 1. I can't see a thing in this. I really can't, except that these might be two babies' heads, no, I can't even see that. It looks like babies, like a little baby on the floor, crawling. There are two of them. I just can't see a thing.

1'29"

IX. 1. The lower pink. The pink is associated with babies which made me think of that.

36"

X. 1. This may be two animals gnawing on a bark. That would be the bark, that part of the tree, and that's the two mouths gnawing on there. Gee, I don't see how anyone ever sees anything out of this!

X. 1. The upper grey. The mouths of the animals are seen as grawing on the bark of a tree.

1a. The top part of the worms is seen as the face of a rabbit with two ears extended.

40"

2. This green thing, it's sort of a – foolish thing to see and fantastic, and – oh, here, here I can see these two yellow ones, little dogs, you know, sitting up like this, with their nose in the air, and this one looks like a – now, where have I seen that?

2. The lower inner yellow is seen as two dogs sitting up with noses in the air. The color is not part of it.

28"

3. These two little grey ones, here, the little dark ones, look like animals, some sort of animals, like a weasel or something. I'm really straining to see those things, nothing is obvious.

2'2"

3. The outer dark brown. The brown helps to make them look like grasshoppers with shiny little legs.

Overall time 24'.

That there were great differences in the fullness of the Rorschach reports will be seen from the following tabulation. One judge included over three times as many "points" as another judge.

In analyzing the reports, the interpretations were divided into those based on the standard Rorschach *signs* (formal factors) and those based on *content*.

TABLE I—Number of Items in the Rorschach Interpretive Reports of Different Judges

Judge	Number of Items in Report
A	17
B	22
C	28
D	38
E	20
F	18
G	61
Total	204

TABLE II—Categories of Interpretation with Illustrations of an Interpretation Under Each Category and the Rorschach Basis for the Interpretation

Judge	Gategory of Interpretation	Illustration of Interpretation	Basis of Interpretation
	Interpretations Based on Formal Rorschach Signs		
E	Rorschach signs alone	Anxiety and depression	3 C's
C	Approach to the card	Obsessional – compulsive	Thorough handling of each card
G	Subject's verbalizations	In situations in which she feels secure, is likable if not outrightly charming	Spontaneity in verbalization
G	Nature of M	Compliant, passive	Passive M, V-4, V-5, VIII-3
G	Nature of C	Inability to form deep or serious emotional involvements with people	Color – cold and poor in quality
G	Comparison of determinants	Affectionate, but not generally warm or yielding with men	FM is affectionate Color is cold or frightened
G	Absence of determinants	Relatively successful repression of aggression	VI—avoids bottom of card. No aggressive response
	Interpretations Based on Content		
G	Identification. In this category the subject identifies with the figure in the response	Self-image – to be a very young and nice girl	II-1 Puppies, III-1 little boys, V-5 doll, V-4 woman with child
G	Empathy. Judge uses content to interpret how the subject feels or reacts about self	Ambitious to have children	V-4 woman holding baby, IX-1 Baby crawling
B	Projection. Judge uses content to interpret how subject feels about other individuals	Overglorifies father or paternal figure	I-1, 2 historical figure, kings, priests
G	Comparison of content	Idealizes men, but has contempt for them	I-1 historical figure, I-2 priests, III-1 little boys
D	Absence of content	Underlying fear of sexuality	Inability to express overt sexual percepts
G	Sequence of responses	Idealism, imagination and sentiment may result in disillusionment or surprise	IV-3 In spite of attempt to project a cute puppy dog, she ends up by saying the card is ugly; VII-1, 2 Gives good M at first and immediately follows it with a projection of two ugly women "old gossipers talking"; VII-3 the response of a woman is followed by the projection of a pig in the inquiry.

These interpretations have been picked out for their simplicity. It is typical to have a variety of bases given for a single interpretation. When this has been done, credit has been given for each type of basis for a given interpretation.

TABLE II *(continued)*

Judge	Gategory of Interpretation	Illustration of Interpretation	Basis of Interpretation
	Interpretation Based on Several Factors		
G	Combination of factors	Projection of feelings of sensitivity and slight inadequacy. Identification with the less happy person	High M with low C. Different types of M suggests ease in role playing and in identification with others; III-7 verbalization; VIII-3 screaming and crying; II-2 Color response of bleeding heart; III-4 Projection of negro response suggests feelings of inadequacy and sensitivity to inferiority and superiority problems.

In this interpretation credit was given for 1) use of determinants, 2) nature of M, 3) comparison of determinants, 4) identification, 5) projection, 6) verbalization.

TABLE III—The Separate Interpretations Classified by Topics for Each Judge

	Total Number of Items	Judge A	B	C	D	E	F	G
Mental ability	7	1	0	3	0	2	1	2
Drive—achievement	7	1	1	0	1	2	0	2
Organization of personality	6	0	0	0	1	1	0	4
Contact with reality	3	0	0	1	0	1	0	1
Imagination	2	0	0	0	0	0	1	2
Social relationships	11	3	1	1	2	0	1	4
Attitude toward children	3	0	0	1	0	0	0	2
Lability—stability	2	0	0	0	0	1	0	1
Sensitivity	5	0	1	0	0	0	1	3
Sentimentality	1	0	0	0	0	0	0	1
Controlled—inhibited	6	0	3	0	0	0	2	1
Introverted	1	0	0	0	0	1	0	0
Feelings of inferiority	4	1	1	0	1	0	0	1
Anxiety	15	3	2	5	1	1	1	2
Nightmares	1	0	0	0	1	0	0	0
Indecisive	1	1	0	0	0	0	0	0
Obsessive	1	0	0	1	0	0	0	0
Passive—dependent	13	0	2	1	1	3	3	3
Depressive	8	0	2	2	1	1	0	5
Narcissistic—self-centered	2	0	0	0	1	0	0	1
Immature	4	0	0	0	2	0	0	2
Masochistic	1	0	0	0	0	0	0	1
Concentration—perseverence	1	0	0	0	0	0	0	1
Lively—animated	1	0	0	0	1	0	0	0
Sex	16	1	2	0	4	3	1	5
Attitude toward men	10	0	1	0	2	1	1	5
Femininity	4	0	0	0	1	0	1	2
Homosexuality	3	0	0	3	0	0	0	0
Moralistic—prudish	3	0	2	1	0	0	0	0
Aggression	7	0	0	2	2	1	1	3
Gossip	3	0	0	2	1	0	0	0
Unstable—temper tantrums	1	0	0	0	1	0	0	0
Religious standards	5	0	0	2	0	1	1	1
Cool, calm	2	0	0	0	2	0	0	0
Conformity	6	0	0	0	1	1	3	1
Conflict—sex and religion	1	0	0	0	1	0	0	0
Racial attitudes	1	0	0	1	0	0	0	0
Parental rejection	4	0	0	1	3	0	0	0
Transference	3	0	2	0	0	0	0	1
Miscellaneous	20	6	2	1	7	0	0	4
	195	17	22	28	38	20	18	61

It was said at the beginning of this paper that these seven Rorschach interpretations could serve as the basis for a study of validity by comparison with a case report based on ten therapeutic interviews, observation while teaching, and reports from the principal and subject supervisor in the school. These materials have been written up in a forty-five page report which serves as the criterion in this study.

Each interpretation was called +, 0, or ?, according to whether it obviously agreed with the criterion report, disagreed with the criterion report or there was doubt because the criterion report was not explicit concerning a given point of Rorschach interpretation.

It will probably be recognized that considerable subjectivity enters into the assignments of +, 0, or ?. In the first place, an interview situation represents a very limited opportunity to become acquainted with a person. One's impressions and judgments from an interview must be based on what one observes directly and what the subject communicates. Judgment in this narrow situation in which a person responds to one other person almost of necessity must be distorted. The subject may very well react quite differently to other persons in other situations.

In cases where the interpretations from the Rorschach agreed with the observations in the interview situation and in the classroom, a + was readily given. In a few cases, the observation definitely disagreed with the Rorschach interpretations, and a 0 was given. But in any case of doubt, when it seemed that the evidence was insufficient to reach a reliable conclusion, the ? was used.

Table IV gives the result of the analysis of interpretations classified according to whether they are +, 0, or ?.

Certain discrepancies in the totals in this table require explanation. An entry is made for every type of explanation, even if more than one explanation is given for a given interpretation. The tabulations under "Determinants" include not only those in which the interpretation is made simply from a determinant or if it is also made from the nature of M, nature of C, already separately tallied under those headings. Consequently, the breakdown totals will not agree with the total number of statements. For instance, Judge G has 38 determinant explanations and 51 content explanations, a total of 89, whereas his total number of interpretations is only 61. As explained above, this is because a given interpretation may have more than one explanation.

There are several points worthy of attention in this table. The per cent of + responses to total responses for the entire group is 65. Naturally this is but one Rorschach case so that little can be generalized from this per cent. But the fact remains that these seven highly qualified Rorschach specialists could make convincing interpretations when compared to a case study whose data were secured from other sources only 2 out of 3 times. There were great differences between the judges. Judge D's average of correctness was 78% while Judge F's average of correctness was only 33%. In the interpretation of the Rorschach it actually makes a difference who is doing the interpreting and even highly qualified experts can be wrong more often than they are right in statements that they make about a person from the Rorschach. But it should also be noted that in the case of three judges 3 out of 4 of their interpretations were correct.

It may be noted that only 109 of the 204 interpretations, or 44% were based on the traditional Rorschach signs and determinants whereas 140 interpretations, or 56%, were based on content. Rorschach himself made little use of content and what little use he did make was not very impor-

tant because of his arbitrary content classifications. The growing emphasis on dynamic, symbolic content interpretations seems to give content interpretation considerably more significance than it had for Rorschach, but there is danger that young students will be encouraged to overdo their speculative interpretations based on

TABLE IV—Analysis of Interpretations Classified as +, O, or ?

	Judge A				Judge B				Judge C				Judge D				Judge E				Judge F				Judge G				Total			
	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.	+	O	?	Tot.
Number of statements	6	8	3	17	16	4	2	22	17	4	7	28	30	5	3	38	10	7	3	20	6	10	2	18	44	8	9	61	129	46	29	204
Explanation missing	2	4	3	9	0	0	0	0	2	1	0	3	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	2	6	5	5	16
Determinants	4	2	0	6	7	2	2	11	3	2	4	9	15	5	3	23	6	5	2	13	1	6	2	9	28	6	4	38	64	28	17	109
Nature of M	1	1	0	2	0	0	0	0	0	0	0	0	2	2	0	4	1	0	0	1	0	0	0	0	10	2	1	13	14	5	1	20
Nature of C	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	0	0	2	0	2	5	0	0	5	7	2	1	10
Comparison of Determinants	1	1	0	2	2	0	1	3	1	0	0	1	2	1	0	3	0	0	0	0	0	1	0	1	10	1	0	11	16	4	2	22
Absence of Determinants	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	1	0	3	4	2	0	6
Identification	1	2	0	3	8	0	0	8	9	1	3	13	7	0	0	7	2	2	0	4	5	4	1	10	16	0	2	18	48	9	6	63
Empathy	0	0	0	0	6	1	0	7	4	0	1	5	4	0	0	4	3	0	0	3	2	2	0	4	5	1	2	8	24	4	3	31
Projection	0	0	0	0	3	1	0	4	1	0	0	1	2	0	0	2	1	0	1	2	0	0	0	0	4	0	0	4	11	1	1	13
Approach to card	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	0	3	0	3
Verbalization	0	1	0	1	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	6	1	1	8	6	4	2	12
Comparison of Content	0	0	0	0	2	0	0	2	1	0	0	1	1	0	0	1	0	0	0	0	0	1	0	1	6	0	0	6	10	1	0	11
Absence of Content	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	1	0	5	4	1	0	5
Sequence of Content	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	2
Total Determinant	4	2	0	6	7	2	2	11	3	2	4	9	15	5	3	23	6	5	2	13	1	6	2	9	28	6	4	38	64	28	17	109
Total Content	1	3	0	4	19	2	0	21	16	3	4	23	14	1	0	15	6	2	1	9	7	8	2	17	41	4	6	51	104	23	13	140
% Determinants			67%				50%				28%				61%				59%				35%				43%				44%	
Total Determinants	4	2			7	4			3	6			15	8			6	7			1	8			28	10			64	45		
Total Content	1	3			19	2			16	7			14	1			6	3			7	10			41	10			104	36		
Determinants % correct	67%				64%				33%				65%				46%				11%				74%				59%			
Content % correct	25%				90%				70%				93%				67%				41%				80%				74%			
Total % correct	50%				73%				60%				78%				50%				33%				75%				65%			

content. One of my friends tells me that practically every interpretation based on content could also be made on the basis of the formal factors and determinants if one were only sagacious enough to read the meaning in them.

But it is significant also to note that 59% of the interpretations based on the determinants were correct whereas 74% based on content were correct. These judges seemed to be able to make more accurate interpretations from content than from the traditional determinants.

But here again there were great individual differences among the judges. For instance, 74% of Judge G's interpretations from the determinants were correct (and there were 38 such interpretations); whereas only 11% of Judge F's determinant interpretations were correct (based on only 9 such interpretations). Again Judge G had 80% correct interpretations from content while Judge H had only 25% correct from content. Every judge (except Judge A) had a larger number of correct responses based on content than on determinants. This difference was spectacular in the case of Judge C who had only 33% correct based on determinants whereas 70% were correct based on content. This Judge, psychoanalytically trained, is more or less independent in her use of the Rorschach and her interpretations are based more on "intuition" than on a strict following of principles of Rorschach interpretation. Judge D achieves the remarkably high accuracy of 93% in her interpretations based on content. Judge G shows the most consistently high level on both interpretations from formal factors and from content.

A more detailed inspection showed that in at least two of the reports the interpretations were remarkably accurate and succeeded in translating faithfully the Rorschach responses into the characteristics of a real person. This was accomplished by interpreting the Rorschach responses as identifications with the subject herself, as projective attitudes toward others with whom the subject has association; or by translating by a process of empathy the Rorschach responses into the subject's strivings, impulses, wishes, associations and the like. Those who did this successfully tended less to read their own tendencies into the record and were content to use interpretations that came more naturally from the record itself.

With regard to interpretations from Rorschach determinants some subjects followed the letter of meaning of Rorschach signs but failed to infuse their interpretations with the life of the subject. Others had the capacity, partly by comparing determinants, to translate them into the realistic personality tendencies of a living person.

Conclusions

A comparison of seven interpretations of one Rorschach protocol by experienced Rorschach experts with case material derived from other sources on the same tested subject permits a rough measure of the accuracy of the Rorschach interpretation and the differences in accuracy between the seven judges.

The per cent of correct interpretations of the entire group of seven judges was 65.

There were wide differences in the accuracy of individual judges. Three of the judges made 3 out of 4 correct interpretations.

Forty-four per cent of the interpretations were based on traditional Rorschach signs and determinants; whereas 56% were based on content.

Fifty-nine per cent of the interpretations based on formal factors were correct according to the case material while 74% of the interpretations based on content were correct, but here again there were great differences between individual judges.

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The Use of the Rorschach Test in Evaluating The Intellectual Levels of Functioning in Schizophrenics[1]

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Although the Rorschach test was not developed as an intelligence test per se, it is purported by numerous psychologists to show intellectual levels. Rorschach (7) claimed that the test is an accurate gauge of intelligence. Klopfer and Ainsworth (6) state that "It is a customary part of Rorschach analysis to estimate the levels of intellectual capacity and efficiency of the subject. This is not considered a substitute for a test of general intelligence although for some purposes such an estimate might be all that is required, thus making an intelligence test unnecessary." Beck (3) concluded that the test offers possibilities of an excellent instrument for diagnosis of personality in both the intellectual and affective functioning. These are only a few of the many claims made by psychologists concerning the validity of the Rorschach test as an instrument for measuring intelligence.

There are many signs and constellations of signs which have been derived from the test and which are used as indices of intelligence. The ones most widely used are: W, M, F+%, A%, O%, variety of content, and succession of responses.

It is fairly evident from a review of the literature, that the use of the Rorschach test as a gauge of the amount and type of intelligence of an individual has resulted from what may be termed "clinical validation" of the various Rorschach test signs and that there is not a single reported study which can be considered to give a convincing demonstration of its validity or nonvalidity. Subjects used in such research have been almost exclusively college students, who were assumed to possess superior intelligence, and children. The "average" and pathological adult populations have been scarcely investigated. Furthermore, the majority of attempts made to validate the Rorschach method have been by correlating the individual scoring categories with the stated or estimated IQs of the subjects. In these studies none of the single signs shows a consistent relationship to intelligence.

There is much controversy concerning the "sign" versus the "configurational" approach in validity studies. Many psychologists feel that the "sign" approach is a distortion of the Rorschach test, whereas others maintain that it gives the test objectivity and status. The research design of the present validity study utilizes both approaches which it is hoped will make some contribution toward their evaluation.

PURPOSE

The purpose of the present study is to investigate the value of the Rorschach test as an instrument for measuring the intellectual levels of functioning in schizophrenic patients,

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[1] This study is based upon a dissertation submitted by the writer to the Graduate School of the University of Nebraska, 1953, in partial fulfillment of the requirements for the degree of Doctor of Philosophy. The author wishes to express his gratitude to the sponsor of the dissertation, Dr. Marshall R. Jones, for his encouragement and assistance, and to Dr. L. S. Abramson, then Chief Psychologist at the V. A. Hospital, Knoxville, Iowa, for his constant cooperation and interest. The author also is deeply indebted to the following psychologists who served as judges for the study: Doctors L. M. Baker, F. Y. Billingslea, J. E. Brewer, D. C. Fitzgerald, Jean Fitzgerald, W. M. Hales, G. A. Kelly, W. G. Klopfer, A. I. Rabin, V. C. Raimy, S. Russo, C. R. Strother, and J. L. Yager.

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with the following specific hypotheses to be tested.

Hypothesis I

Rorschach scoring categories R, Z, M, W, and F+% will be correlated significantly and positively with Wechsler-Bellevue intelligence scores.

Hypothesis II

Rorschach scoring categories R, Z, M, W, and F+%, when combined and weighted by the multiple correlation technique will be related significantly to Wechsler-Bellevue intelligence scores and will be useful for predictive purposes.

Hypothesis III

Clinical Psychologists (diplomates in clinical psychology or the equivalent in training and experience) can evaluate a Rorschach protocol and estimate, with a significant degree of accuracy, the mental efficiency of the individual in terms of the score obtained on the Wechsler-Bellevue Scale.

Hypothesis IV

Psychologists' ratings will show a higher correlation with the obtained Wechsler-Bellevue scores than will the individual Rorschach scoring categories (R, Z, M, W, and F+%) when considered collectively.

Subjects

Subjects used in this study were 60 hospitalized male schizophrenic patients on the admission ward of the Veterans Administration Hospital (psychiatric), Knoxville, Iowa. They were patients on whom the diagnosis was established by unanimous agreement of a psychiatric staff of at least three members, and in the majority of cases had been diagnosed schizophenic reaction two or more times by clinic and hospital staffs prior to their current hospitalization. There were no known organic complications in any of the cases. The age range was 20-39, mean age 27.58, SD 4.70. The education range was from six years of elementary school through college, mean 11.42 years, SD 2.20. The IQ range was 72-130, mean 100.57, SD 13.99.

Procedure

The Rorschach test and the Wechsler-Bellevue Intelligence Scale (Form I) were individually administered to each patient by the author. Both tests were given to most of the subjects on the same day with the Wechsler-Bellevue Scale always being administered first, and in no case was there a lapse of time greater than 36 hours between the two tests. The Rorschach records were scored according to the revised Beck system (2) and all scoring on both tests was checked by competent psychologists.[2]

The subjects were divided into three groups (A, B, and C) of 20 each. Each subject in group A was matched within three IQ points with a subject in each of the other two groups. There were no significant differences among the groups as to the mean age, education and I.Q. About half of the subjects in each group were diagnosed as the paranoid type.

Four experienced psychologists were randomly assigned as judges to each of the three groups of protocols. Each judge in group A (J-A1 . . . J-A4) evaluated the Rorschach protocol for each subject in group A (S-A1 . . . S-A20) and estimated each subject's present level of intellectual functioning as measured by the Wechsler-Bellevue Scale. The same procedure was followed for judge groups B and C, and protocol groups B and C, respectively. The judges were instructed that the Rorschach records were obtained from patients of given ages, diagnosed as schizophrenic reactions (type not specified), and who at the time of testing were on the admission ward of a Veterans Administration psychiatric hospital.

Results

Product-moment correlation coeffi-

[2] The writer wishes to express his appreciation to Doctors L. S. Abramson, D. W. Dysinger, and B. D. Sisson for checking the scoring of the tests.

cients (r) between each of the independent variables R, W, M, Z, and F+%, and the criterion (Full Scale Wechsler IQ–FWS) were calculated. A multiple correlation coefficient (R) was computed in an effort to determine the effectiveness of a combination of these variables as a predictor of obtained IQs. Also, the beta weights and the complete regression equation were computed. The only significant correlations to be noted between the five variables and FWS are those of W and Z, both statistically significant at the 5% level.

In calculating R, F+% was not used because of its low and insignificant correlation with both the IQs and the other Rorschach scoring categories. The obtained R of +.33 is not statistically significant. There was a significant discrepancy between the IQs predicted by the regression equation for groups A and B when compared with C. Therefore, the multiple correlation coefficient and beta weights were computed for groups A and C individually. There was marked variation in the beta weights for the same variable in the two groups.

The significant rs obtained between the eleven Wechsler-Bellevue subtests, Verbal IQ (VWS), Performance IQ (PWS) and R, W, M, and Z, were as follows: both W and Z with Digit Span (DSp), Similarities (Sim), Vocabulary (Voc), and VWS; and R with Picture Arrangement (PA), Block Design (BD), Digit Symbol (DSy), and PWS.

The data do not support the hypothesis that R, Z, M, W, and F+%, when combined and weighted by the multiple correlation technique will show a significant relationship with the FWS.

The third hypothesis was tested by computing rs between each of the judges' ratings and the obtained IQs; also, between the scores predicted by the regression equation (REq) and the actual scores. The results are shown in Table I.

TABLE I–Mean, Variability, and Correlations Between the Estimated IQs and the Actual IQs for Each Group

Judge	Mean	SD	r
FWS (A)	100.65	14.05	
J-A1	104.70	14.22	.588*
J-A2	104.10	13.19	.591*
J-A3	103.90	8.18	.720*
J-A4	97.90	10.28	.612*
REq	100.70	3.84	.267
FWS (B)	100.50	13.85	
J-B1	94.00	8.31	.285
J-B2	100.50	9.21	.247
J-B3	102.25	10.30	.393
J-B4	94.35	13.10	.363
REq	102.00	6.15	.261
FWS (C)	100.55	14.08	
J-C1	99.00	10.36	.344
J-C2	88.25	20.27	.485**
J-C3	92.35	11.06	.388
J-C4	89.20	14.34	.411
REq	100.45	3.89	.500**

* Significant at the 1% level
** Significant at the 5% level

The numerical scores estimated by the judges and the REq were converted into the widely used categories of intellectual classifications. The number of subjects who were correctly and incorrectly categorized by each judge is shown in Table II.

TABLE II – The Number of Subjects Correctly and Incorrectly Categorized When Estimated IQs Are Converted Into Wechsler Categories

Judge	Correct	Incorrect
J-A1	9	11
J-A2	8	12
J-A3	11	9
J-A4	9	11
REq	10	10
J-B1	9	11
J-B2	8	12
J-B3	8	12
J-B4	6	14
REq	10	10
J-C1	8	12
J-C2	4	16
J-C3	4	16
J-C4	5	15
REq	11	9

The data were further analyzed in terms of how well the judges and the REq could estimate the IQs within certain ranges. The results are shown in Table III.

TABLE III—The Number of Estimated IQs Falling Within Certain Ranges Range in IQ Points (+ or —)

Judge	0 to 5	6 to 10	11 to 15	16 or over
J-A1	6	5	3	6
J-A2	5	9	3	3
J-A3	6	8	2	4
J-A4	7	8	2	3
REq	7	4	3	6
J-B1	8	0	2	10
J-B2	4	5	5	6
J-B3	5	8	0	7
J-B4	4	5	3	8
REq	3	6	5	6
J-C1	5	6	2	7
J-C2	2	3	3	12
J-C3	2	6	5	7
J-C4	4	5	2	9
REq	8	2	5	5

As is shown in Tables II and III there are marked interjudge differences in ability to place correctly the subjects within their appropriate Wechsler categories, and to estimate the patients' obtained scores within certain IQ ranges.

The fourth hypothesis states that clinical psychologists' estimates will be more highly correlated with FWS than will the individual scoring categories when considered collectively. This was found to be true for some of the judges but not for others. The *r*s for all judges in group A were significant at the 1% level, none was significant in group B, and only one at the 5% level in group C. The *r* for the REq estimates was significant at the 5% level for group C.

The results obtained from cross-group ratings by three judges are shown in Table IV.

TABLE IV—Original and Cross-Group Ratings for Three Judges

Judge	Orig. Gp	r	Cross-Gp	r
J-A1	A	.612*	C	.306
J-B3	B	.393	A	.760*
J-C1	C	.411	B	.880*

* Significant at the 1% level

DISCUSSION

The relationship between the most commonly used scoring categories on the Rorschach test (R, W, M, Z, and F+%) and the FWS has been clarified by demonstrating the relationship individually. These results show that the *r*s for all of these are quite low, with only W and Z being statistically significant, and certainly not high enough for predictive purposes in individual cases.

In the present schizophrenic group, R is significantly related to five WB scores, four of which are in the performance area (PA, BD, DSy, and PWS; it is realized that the latter is not independent of the subtests mentioned), with only one (Com) being a verbal test. The *r* obtained between R and FWS approaches statistical significance. A factor-analytical study reported by Cohen (4), based on the use of the WB scale with a group of schizophrenic patients, indicates that in this particular diagnostic group the DSy and BD subtests provide good indices of present general intellectual functioning, especially via nonverbal means. The results reported in the present study may indicate that the production of many responses is related to freedom from distractability, the ability to organize nonverbal material into meaningful wholes against a time limit, and what is probably the most important, the present general intellectual level of functioning. On the basis of these findings and the work that has already been done on neurotics, it is hypothesized that the intellectual impairment of neurotics manifests itself in the visual-motor area affecting speed and accuracy of performance, whereas in schizophrenics it manifests itself in a disturbance of thinking and abstraction. This is in keeping with the commonly held idea that a deficit in conceptual thinking is prominent in schizophrenics and that they find great difficulty in dealing with problems of deduction and also in shifting from one concept to another. It is also congruent with Wechsler's contention that neurotics do poorly on tests which require immediate effort, such

as the PA, OA, and DSy subtests.

W and Z, which are shown to be correlated significantly with FWS, seem to owe their relationship in this group almost entirely to their correlation with three of the Verbal subtests (DSp, Sim and Voc). Among schizophrenic patients freedom from distractability, the ability to engage in verbal abstraction and the ability for concept formation seem to be related to their ability to organize and see things as a whole. These results can be more clearly appreciated in terms of the light they throw upon the schizophrenic process when compared with similar figures derived from the study of neurotics by Wishner (8). The only consistency between the two studies is the high correlation of W and Z with the Voc scores. This, along with Batt's (1) findings that Z is correlated significantly with the Vocabulary section of the PMA Test in a group of "normal" high school subjects, offers some support for the widely used clinical hypothesis that scores on vocabulary tests provide good estimates of premorbid levels of intellectual functioning, since the scores appear to be quite resistant to the affects of neurotic or schizophrenic processes. These data would suggest that W and Z, of the categories studied, are the best predictors of intellectual potential.

The findings concerning R, W, and Z suggest the interpretation that the impetus responsible for response productivity on the Rorschach test, perhaps a manifestation of intellectual energy, perseverance, and/or willingness, is similar or closely related to the processes involved in visual-motor performance speed and efficiency. Whereas the amount and level of intellectual ability required for constructive mental organization (W and Z) are more directly products of the verbal components of intelligence than of overt performance skill.

Category M did not show a significant relationship with any of the WB scores. The results of this study suggest that intellectual impairment in schizophrenics manifests itself in a disturbance of thinking and abstraction. Thus one might logically expect a low correlation between WB scores and M as the latter is frequently considered to be related to conceptualized and creative thinking and an abstract attitude. This certainly needs to be investigated further with the quality of the M responses being taken into consideration and a group of normal subjects employed.

The F+% has been widely accepted as an indicator of the intellectual capacity of the individual, of the ability to direct one's thinking with conscious attention and discriminating judgment, and of his reality contact. Beck (3), Ford (5), and Hertz (6) found a significant correlation between F+% and intelligence in a group of mental defectives, superior children, and junior high school pupils, respectively. This is not in line with the findings in the present study; the correlations between F+% and FWS, VWS, and PWS were +.07, +.04, and +.09, respectively. The only explanation the writer has for this is that the F+% is more sensitive to emotional disturbance than is the WB and consequently, since it can be assumed that schizophrenics show impairment in discriminating judgment and reality contact, F+% is not significantly related to intellectual functioning in emotionally disturbed individuals. The studies cited above plus Wishner's study on neurotics would offer some support for this explanation.

The multiple correlation coefficient was not significant, so here again the Rorschach scoring categories seem to be of little value in predicting intelligence. The writer has concluded that the variability of the Rorschach scores is so great that they are not considered reliable and that the test scores arranged in battery form and weighted accordingly do not afford a sufficient measure of intelligence to be used to predict reliably the intel-

lectual level of functioning in individual cases.

The regression equation can predict fairly accurately the IQ and categorize patients who are functioning within the "average" range. Therefore, it was the writer's opinion that an experienced clinical psychologist could quantitatively and qualitatively evaluate the Rorschach records and make quite accurate estimates of the WB scores by raising or lowering the regression equation predicted scores. One judge, using both the Rorschach protocols and the IQs predicted by the regression equation, estimated the WB scores for the patients in Group C. The regression equation estimates for this group correlated to the extent of +.50 with the actual scores. The correlation coefficient between the judge's revised predicted IQs and the actual IQs was —.056. This would make questionable the use of the regression equation in conjunction with clinical judgment. However, this suggestion is based on the results of one judge only and on a group of records which are apparently difficult to rate, and therefore, must be considered highly tentative. The value of the regression equation used with clinical judgment should be explored further by using additional judges and by testing it on a new group of records.

As a test of the "global" approach to the study of intelligence by means of the Rorschach test, and to check on the danger of making clinical deductions from isolated patterns, twelve judges predicted the WB IQs using whatever information they wished from the recorded protocols and the summary sheets. The data were analyzed in as many ways as seemed relevant, including correlations between the estimated and actual scores, and computation of the direction, amount and variability of each judge's ratings. Further analyses were made in order to determine the judge's ability to place subjects in the usual Wechsler categories and within certain specified IQ ranges. The analysis of variance computed on the judges' ratings, the Z' transformation technique applied to the correlations between the estimated and actual scores, and the differences in the judges' categorization of patients, all suggest that not only is there a wide difference among judges as concerns their ability to estimate the intellectual levels of functioning in schizophrenics but that there are marked protocol differences. The Rorschach records differ significantly in the degree of accuracy with which they can be judged even though they are obtained from patients with the same or approximately the same IQs. It is not possible to identify the protocols that judges can rate adequately as there is no consistent picture presented by the protocols misjudged most frequently, nor by the ones on which the estimates were most accurate. The examiner believed that two possible factors which might influence the judges' estimates were whether the judges were engaged primarily in service or academic work and whether they ordinarily use the Beck or Klopfer scoring technique, since the Rorschach test was given and scored according to the Beck system. An inspection of the data suggests that neither the scoring systems used by the judges nor their primary duty, i.e., whether service or academic work, makes a significant difference in their ability to rate the records.

The results of this study would seem to have several important clinical implications for the use of the Rorschach test. The test has been given an opportunity to demonstrate its predictive efficiency in the area of intellectual functioning, operationally defined as the performance on the Wechsler-Bellevue Scale. It has been studied atomistically and by the sign approach as well as configurationally, and it must be concluded that it has failed to demonstrate satisfactory validity within the limits of this study. This study says nothing about the validity of the Rorschach test for re-

vealing information about the patient's manner of approach to problem situations, the range of his interests, and degree of criticalness, as well as many other things about his functioning. The study only demonstrates the hazards of making specific quantitative and categorical predictions of present intellectual level of functioning in schizophrenics.

SUMMARY AND CONCLUSIONS

The present study was designed to investigate the value of the Rorschach test as an instrument for measuring the intellectual levels of functioning in schizophrenic patients with specific hypotheses to be tested.

Sixty hospitalized schizophrenic patients ranging in age from 20 to 39 years, were individually administered a Wechsler-Bellevue Intelligence Scale and a Rorschach test. Some of the purported Rorschach indices of intelligence were investigated by means of various statistical techniques. Also, each of twelve experienced clinical psychologists evaluated the Rorschach test protocols of 20 patients and estimated the intellectual level of functioning of each, as measured by the Wechsler-Bellevue Scale.

Statistical analyses of the findings failed to yield significant evidence to establish the validity of the Rorschach test as an instrument for estimating the intellectual levels of functioning in schizophrenics. The results indicate that the Rorschach scoring categories R, Z, M, W, and F+%, when considered individually or collectively, are not sufficiently reliable and do not afford an adequate measure of intelligence to be useful for prediction in individual cases. Also, that because of inter-judge variation in the ability to estimate intelligence scores from Rorschach records and because of inter-protocol variation, estimates of intelligence should not be made from the Rorschach test records of schizophrenics. Possible explanations of the findings are discussed.

REFERENCES

1. Batt, H. V. An investigation of the significance of the Rorschach Z-score. Unpublished doctor's dissertation, University of Nebraska, 1953.

2. Beck, S. J. *Rorschach's test. Vol. I—Basic processes.* (2nd Ed.) New York: Grune & Stratton, 1949.

3. Beck, S. J. The Rorschach test as applied to a feeble-minded group. *Arch. Psychol.*, 1932, *136*, 1-84.

4. Cohen, J. A factor-analytically based rationale for the Wechsler-Bellevue. *J. Consult. Psychol.*, 1952, *16*, 272-277.

5. Ford, Mary. The application of the Rorschach test to young children. Univer. of Minn. Inst. Child Welf. Monogr., 1946, 23.

6. Klopfer, B., Ainsworth, Mary D., Klopfer, W. G., Holt, R. R. *Developments in the Rorschach Technique. Vol. I—Technique and Theory.* New York: World Book Company, 1954.

7. Rorschach, H. *Psychodiagnostik.* New York: Grune & Stratton, 1942.

8. Wishner, J. Rorschach intellectual indicators in neurotics. *Amer. J. Orthopsychiat.*, 1948, *18*, 265-279.

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Judgment of Children's Popularity from Their Human Figure Drawings[1]

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PROBLEM

The clinical evaluation of projective drawings is generally regarded to be a significant part of the total diagnostic procedure. Considerable research on the use of human figure drawings has been done, but the literature emphasizes an atomistic approach and includes only relatively few studies dealing with the interpretive validity of global judgments of drawings (1, 2, 5, 10). One of the implicit considerations in the analysis of projective drawings is frequently the level of personality adjustment which it is assumed the patient has attained. Machover states, "At the present stage of the development of the method, evaluation in regard to adjustment capacities and degree of normality are made on the basis of interrelationship of personality traits contained in the drawing" (6, p. 23). It would seem that a contribution could be made to the increasing body of information concerning the efficacy of human figure drawings by an analysis of the degree to which clinical psychologists are able to judge one aspect of adjustment using this technique. The present study is therefore concerned primarily with determining the accuracy with which a group of experienced clinical psychologists can differentiate between children who, on the basis of sociometric analysis, are found to be frequently selected by their peers, i.e., those who are "popular," and children who are found to be infrequently selected for personal association, i.e., those who are "unpopular" in their groups.

The hypotheses proposed are: (1) That there are certain personality characteristics which are related to a child's tendency to be accepted or rejected by the members of his group; (2) some of these personality dimensions are reflected in the graphic productions of the child; and (3) clinical psychologists can accurately identify the sociometrically well and poorly adjusted children by inspecting their drawings.

METHOD

Sociometric studies were conducted in three fifth grade classes and in one fourth grade section of one metropolitan public school. Cox (3) has shown that for a group of 52 children, aged 5 to 13 years, sociometric status was an effective index of adjustment. The sociometric investigation was conducted near the end of the school year at a time when the children had had ample opportunity to become well-acquainted with each other. Only one question was used in the sociometric analysis since Northway (7) reports that relatively high coefficients are usually found when correlations between different questions are computed. Specifically, the children in each class were given the following instructions orally by their respective teachers:

> If your mother said you could invite one of the children in your class to dinner on Friday night, whom would you choose? If this person could not come, whom else would you invite? If this person were unable to accept the invitation, whom else would you invite?

In this manner a total of three selections were obtained for each child.

[1] The authors wish to express their thanks to the psychologists affiliated with Presbyterian Hospital who cooperated in this study and to the teachers who assisted in collecting the sociometric ratings and the projective drawings.

[2] Associated with the Psychology Department of Neurological Institute, Presbyterian Hospital, New York City.

TABLE I – Reliability of Sociometric Standings

Section	r	P.E.
I (N=34)	.76	±.05
II (N=33)	.71	±.06
III (N=34)	.73	±.05
IV (N=35)	.71	±.06

In order to establish the reliability of the selections, repeat sociograms were compiled. That the criterion of popularity is adequate in reliability may be seen by inspecting Table I which presents the product-moment correlations for the four sections with a one week test-retest interval.

The same children also contributed two drawings; one in response to the request that they "draw-a-person," and one in response to the instruction that they make a person of the sex opposite to that of their first drawing. The students were asked to label their drawings in each case in accordance with the sex they intended to depict. These graphic productions were done in class within two days of the original sociometric analysis. The group administration of the drawings may be defended by referring to a study by Feather (4) who found that the drawing of the human figure yields meaningful information even when administered on a group basis.

Table II summarizes the sex, age, and intelligence distribution of the subjects in each of the four sections. A total of 136 white children comprised the sample in this experiment. The I.Q.'s were obtained from the children's school record cards and were derived from the following group tests: the Otis Quick-Scoring Mental Ability Tests, the Pintner-Cunningham, and the Pintner-Durost General Ability Tests.

The human figure drawings produced by the children in each class were then presented to five clinical psychologists who made their judgments independently of each other. As indicated, each child contributed a set of two drawings, the representation of a male and a female figure. The order in which these were originally drawn was retained and clearly marked for the judges. The psychologists, all of whom had had at least

TABLE II – The Sex, Age, and I.Q. Distribution of 136 Children from Whom Sociometric Ratings and Projective Drawings Were Obtained

Section	Sex		Age		I.Q.	
	Male (%)	Female (%)	Range	Mean	Range	Mean
I (5th grade) N=34	47.1	52.9	10 yrs. 1 mo. to 12 yrs. 0 mo.	10 yrs. 9 mos.	70-126	94.7
II (5th grade) N=33	51.5	48.5	10 yrs. 1 mo. to 12 yrs. 7 mos.	10 yrs. 10 mos.	74-119	93.5
III (5th grade) N=34	50.0	50.0	10 yrs. 1 mo. to 12 yrs. 8 mos.	10 yrs. 10 mos.	72-125	95.9
IV (4th grade) N=35	48.6	51.4	9 yrs. 1 mo. to 10 yrs. 6 mos.	9 yrs. 7 mos.	70-135	103.3

two years of clinical experience in evaluating projective techniques as applied to children, were requested to select in each class five sets of drawings which they thought were produced by the most popular children and five sets which they believed to be the product of the least popular children. "Popularity" was defined for the clinicians operationally as the relative frequency with which any one child was invited by his classmates to their homes for dinner.

Furthermore, the clinicians were requested to record the personality dimensions which they considered to be related significantly to a child's tendency to be popular or unpopular in a group. Also, they were instructed to indicate the precise manner in which they understood these personality dimensions to be reflected in the projective drawings. In this manner, it was hoped, information would be available for an analysis of some of the variables which influenced the judges' ratings and for an evaluation of the degree of inter-rater consistency in selecting these decision-determining factors.

Results

Quantitative Results:

The results presented in Table III indicate that when the judgments of the five psychologists are combined for each class, they are able to differentiate to a statistically significant degree in three of the four sections between the popular and unpopular students. The only class in which the psychologists were unsuccessful in making correct discriminations was in the fourth grade section which was comprised of younger and somewhat brighter students than the other sections.

Table IV reveals that four of the five psychologists, when their ratings of drawings for the four sections were combined, discriminated successfully between the more popular and the less popular students.

It is conceivable that a psychologist may be able to successfully discriminate between popular and unpopular children, on the basis of their drawings, and still be unable to differentiate between the child who is average in popularity and a child who falls within either of these two extremes. In order to determine whether clinicians can also make this type of differentiation, and in order to ascertain whether they are more proficient in the selection of drawings produced by the more popular or by the less popular children, Chi-square tests were

Table III — Summary of the Combined Ability of Five Psychologists to Differentiate in Each of Four Sections Between More and Less Popular Students

The frequencies represent sociometric ratings.

Section	Popular	Unpopular	Chi-square	P
I	111	37	37.00	<.01
II	100	74	3.89	.05
III	78	46	8.26	<.01
IV	76	79	.06	.90

Table IV — Summary of the Ability of Each Psychologist to Discriminate Between the More and Less Popular Students When the Four Sections Are Combined

The frequencies represent sociometric ratings.

Psychologist	Popular	Unpopular	Chi-square	P
A	68	43	5.63	.02
B	68	52	2.13	.20
C	96	50	14.49	<.01
D	62	42	3.85	.05
E	71	49	4.03	.05

also done comparing the sociometric ratings of the children judged by the psychologists to be more and less popular with the rating expected of the average child.

The results of this type of analysis indicate that such a finer discrimination is not generally possible with respect to the average as compared to either the more popular or the average compared to the less popular group. Only three of the five psychologists achieved statistical significance, one for his popular selections, three for their unpopular selections.

Another problem which warrants attention is the degree to which the raters in this experiment agreed with each other as to their selection of drawings as being representative of the more and less popular groups. When the number of drawings about which three or more psychologists agreed was compared with their total selections, a 24.1% agreement was found for the more popular and a 34.8% agreement for the less popular group. These results are presented in greater detail for the four sections in Table V.

TABLE V — Agreement of Raters

Section	Percent Agreement* More Popular	Less Popular
I	20.0	33.3
II	25.0	23.1
III	30.8	40.0
IV	21.4	45.5

*Agreement by at least three psychologists represented the criterion.

Inspection of Table VI will show that in two of the four sections, the average I.Q. for subjects assigned to the more popular group by three or more psychologists is higher than the average I.Q. for subjects assigned to the less popular group.

An incidental finding is that of the 67 boys in the sample, 82% drew a male figure first, whereas of the 69 girls in the four classes, 91% produced a drawing of their own sex

TABLE VI — Average I.Q. for Subjects Selected to be More Popular and Less Popular by Three or More Raters

Section	More Popular		Less Popular	
	N	I.Q.	N	I.Q.
I	3	102	4	84
II	3	93	3	92
III	4	102	4	103
IV	3	114	5	88

initially. These results compare favorably with the findings of Weider and Noller (8, 9).

Qualitative Findings:

It will be recalled that the psychologists were requested to furnish two additional types of information; namely, a list of personality factors which they thought would be important in determining the child's relative popularity standing within a group, and a listing of the manner in which they thought these factors would be reflected in the subjects' projective drawings. The items which were most frequently mentioned as being significantly related to popularity are categorized as follows:

1. Degree of internal adjustment—e.g., ego strength
2. Degree of extroversion
3. Degree of interest in and awareness of social aspects and the ability to identify with others
4. Degree of identification with same sex
5. Degree of freedom from depression and anxiety
6. Degree of spontaneity in behavior
7. Degree of intelligence

The formal characteristics most frequently looked for in the drawings are also summarized below.

1. Size, position, and proportioning of the drawings
2. Degree of integration and detailing
3. Type of line quality, shading
4. Type of movement depicted
5. Type of facial expression

6. Types of omissions and distortions
7. Sex drawn first, type of attire included

Discussion

This study was undertaken in order to evaluate the ability of experienced clinicians to utilize global judgments of human figure drawings in differentiating between children who are more popular within their groups and those who are less popular. Although it is true that the criterion of popularity selected in the present investigation may be open to criticism, based on the fact that a number of extraneous variables could have affected sociometric choices of the kind obtained here, these factors are probably of relatively minor importance. A high degree of ego-involvement on the part of the children making their choices was aimed at and, it is believed, was achieved.

The results of this study indicate that psychologists are generally successful in making the kind of discriminations called for in the procedure. There are individual differences in their sensitivity to the productions of the more or less popular children; they seem to have approximately equal facility in detecting the more popular and the less popular child. The inter-rater agreement is relatively low, somewhat better for the less popular than for the more popular group. A future investigation of what factors account for the differences among raters suggests itself.

Of particular interest are the results obtained for the fourth grade since they may shed some light on certain developmental considerations. Is it possible that the failure of the psychologists to make correct differentiations in this section is due to the age differences in this class relative to the other sections? Although the sample in the fourth grade is too small to warrant definite conclusions about this particular age group, it is possible that children who are about 9½ years old find greatly different attributes desirable and undesirable in their associates than do children who are aged approximately 10 years 10 months. Such a difference could conceivably lead to incorrect inferences being drawn about the projective drawings of these children. In other words, the relative importance of various personality traits expressed in human figure drawings may vary markedly for different age groups. Machover has the following to say about this point:

> The chronological age of the subject does not materially alter the interpretation of specific characteristics of his graphic expression since the latter is based on body image projection and the basic functional meaning of its parts. (6, p. 102).

She does caution, however, that the specific significance of a drawing characteristic must be interpreted in terms of its tendency to appear in a particular age group so that one can decide whether it is normal for that developmental phase or not.

Although it is possible that the greater I.Q. variability, especially the higher mean I.Q., of the fourth grade class played some role in accounting for the divergent results in that section, it is not likely that intelligence was of critical importance since psychologists did not consistently draw the more popular child from the more intelligent group.

A perusal of the qualitative results indicates a marked similarity in the stated manner in which psychologists went about making their decisions. The study reveals that clinicians use more than one criterion in their judgments about relative popularity although, of course, all the psychologists do not utilize the same factors. Since greatest emphasis was placed by the judges on characteristics which could be classified as integral components of adjustment, it could be argued that the raters, in general, attempted to select drawings representative of the most and the least adjusted children. Essentially, then, the experiment could be reduced to the ques-

tion of how well are clinicians able to differentiate between socially well and poorly adjusted students on the basis of their figure drawings. If a perfect correlation between "popularity," as defined in the present study, and adjustment existed, an even higher level of differentiation would probably have been possible. A perfect correlation, however, does not prevail and it is likely that sociometric status reflects in part the degree to which an individual strives to conform to the values of his group and attempts to gain acceptance because of the very conflicts, stresses, and feelings of insecurity that he may have. As a group, the more popular subjects doubtlessly possessed more desirable personal traits than the less popular children, but there was probably also considerable overlapping. The failure of the psychologists to make finer discriminations between the extremes in popularity and the average child may very well be related to this overlapping in desirable and undesirable characteristics found in each group.

SUMMARY

This study sheds some light on both the efficacy of human figure drawings as a technique for differentiating subjects with varying degrees of social adjustment and on the ability of psychologists to utilize this method effectively. Human figure drawings of 136 fourth and fifth grade children were presented to five experienced clinical psychologists who were requested to select the productions of the most and least popular in the groups. Sociometric status was selected as a criterion of relative popularity. The psychologists also contributed information concerning the personality variables which they considered to be significantly related to popularity and the formal characteristics of the drawings which they thought helped them in making their decisions. Within the limitations of the sample and the experimental design utilized, there is considerable support in the data for the following hypotheses: (a) There are certain dimensions of personality which seem to be associated with group acceptance and rejection; (b) some of these variables are expressed in children's human figure drawings; and (c) psychologists are generally able to discriminate accurately, using their figure drawings, between the more and less popular children, but only on a group basis.

The following problems seem to offer promise for future research: (1) The possible effect of special training designed to enhance the level of accuracy attained in interpreting drawings; (2) an analysis of errors committed by judges in order to ascertain whether failures are due primarily to incorrect inferences being drawn from characteristics observed in the drawings or whether they are chiefly a function of erroneous assumptions concerning the nature of popularity; and (3) a comparative study of the ability of psychologically unsophisticated judges and psychologists to evaluate globally human figure drawings. The last type of problem, using teachers as judges, is currently being investigated.

REFERENCES

1. Albee, G. W. and Hamlin, R. An investigation of the reliability and validity of judgments inferred from drawings. *J. clin. Psychol.*, 1949, *5*, 389-392.

2. Albee, G. W. and Hamlin, R. Judgments of adjustment from drawings; the application of rating scale methods. *J. clin. Psychol.*, 1950, *6*, 363-365.

3. Cox, F. N. Sociometric status and individual adjustment before and after play therapy. *J. abnorm. soc. Psychol.*, 1953, *48*, 354-356.

4. Feather, D. B. An exploratory study in the use of figure drawings in a group situation. *J. soc. Psychol.*, 1953, *37*, 163-170.

5. Fisher, S. and Fisher, R. Test of certain assumptions regarding figure drawing analysis. *J. abnorm. soc. Psychol.*, 1950, *45*, 727-732.

6. Machover, Karen. *Personality projection in the drawing of the human figure.* (3rd Ed.) Springfield, Ill.: C. C. Thomas, 1953.

7. Northway, Mary L. *A primer of sociometry*. Toronto, Canada: Univer. of Toronto Press, 1952.

8. Weider, A. and Noller, P. A. Objective studies of children's drawings of human figures. I. Sex awareness and socio-economic level. *J. clin. Psychol.*, 1950, *6*, 319-325.

9. Weider, A. and Noller, P. A. Objective studies of children's drawings of human figures. II. Sex, age, intelligence. *J. clin. Psychol.*, 1953, *9*, 20-23.

10. Whitmyre, J. W. The significance of artistic excellence in the judgment of adjustment inferred from human figure drawings. *J. consult. Psychol.*, 1953, *17*, 421-424.

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Development and Initial Validation of an Objective Scoring Method For the Lowenfeld Mosaic Test [1]

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INTRODUCTION

The inclusion of a separate chapter by Wertham (13) in *Projective Tests in Clinical Psychology* markedly increased interest in this technique as a diagnostic tool. However, a very recent review of the literature on the test by Dörken (14) deals with only seventeen references and many of these are descriptive only. A perusal of some of the major reports, including those of Wertham (13), Lowenfeld (8), Himmelweit and Eysenck (7) and Diamond and Schmale (3), discloses that each gives suggestions for evaluating the designs but that no comprehensive objective scoring system has been developed. The clinicians using the Mosaic Test are enthusiastic. They claim empirical validity for the test yet the proof is lacking. Scoring characteristics have not been objectively defined nor has it been demonstrated satisfactorily that statistical differences between groups occur. Lowenfeld (8), Wertham (13), and Diamond and Schmale (3) concur in the judgment that no exact numerical procedure is of value in interpreting the Mosaic Test yet no evidence has been adduced in support of the hypothesis that quantitative methods are of no value. Pascal (11), while admitting that the Mosaic Test presents problems of standardization and quantification goes on to add "not the least of which are attitudes in the minds of some users that quantification will not contribute to the usefulness of the test." The present study was undertaken in the belief that further knowledge of the Mosaic Test's potentiality for clinical diagnosis and personality research can only be obtained by the utilization of quantitative methods.

THE PROBLEM

The problem of the study was the development of a method by which psychologically meaningful aspects of the Mosaic Test can be quantitatively described and scored.

In order to make possible comparison of the previous studies with the present one it was deemed advisable to select similar subjects. These have been persons classified in terms of categories of mental illness. In this study it was believed the following propositional statement would be supported:

The proposed scoring categories would differentiate a group of normal individuals from patients diagnosed as schizophrenics, neurotics and organics respectively, and would also differentiate between these groups.

The problem and the propositional statement were dictated by an examination of the literature. This demonstrated the need for a large-scale, broad survey which would confirm or disprove the poorly supported clinical impressions in which the Mosaic Test literature abounds.

PROCEDURE

Description and Administration of the Mosaic Test

The test materials used closely re-

[1] This report is based on a dissertation submitted to the Department of Psychology of the University of Toronto in partial fulfillment of the requirements for the degree of Doctor of Philosophy, 1953.

I wish to thank Dr. A. B. Stokes, Professor of Psychiatry, University of Toronto, and Director of the Toronto Psychiatric Hospital for his support of the study. The hospital psychological and nursing staffs gave invaluable assistance. To Dr. D. C. Williams of the Department of Psychology who supervised the study I tender my warmest thanks for his encouragement and help.

semble those described by Wertham (13). The pieces are of plastic, one-eighth inch thick and roughly one and one-quarter inches to a side. There are six colours: red, green, yellow, blue, black and white, and six shapes in each colour: squares; diamonds; equilateral, isosceles and scalene triangles, and rectangles. These pieces are used in a stained fir plywood tray, 16 inches by 10½ inches, with a raised margin to keep the blocks from sliding off.

The subject was seated across the desk from the examiner with the tray in front of him. The test pieces were spread out evenly in front of the tray on a manila folder. The subject was shown the six shapes, each in a separate colour. Neither the shapes nor the colours were named. The following directions were then given:

> "Here are the shapes and the colours. Every colour comes in every shape. Now go ahead and make something. Make it on the tray. You may use whatever shapes or colours you wish and as many or as few pieces as you like. There is no time limit."

A record was kept of the time required for making a design. If the subject asked what he should make he was told to "make it as you like."

The subject was permitted to alter his design in any way he wished. Changes were recorded. Usually the subject told the examiner when he was finished. If he hesitated and did nothing for a considerable time he was asked to tell the examiner when he had finished. Occasionally a subject destroyed his design. When this occurred he was told that some record of his work should be left for the examiner. When a design had been completed the subject was asked to tell about it. If he had made a concrete object he usually named it. If the examiner was in doubt as to whether the design was representational he asked the subject explicitly.

Three staff psychologists tested the majority of the patients. Two other psychologists and two internes tested the remainder. The testing was done within a month of admission to hospital. The personalities of the examiners, the position of the Mosaic Test in the test battery and the length of time in the hospital before testing were factors which could not be controlled but for which rough randomization was presumed.

All the normal subjects were tested by the investigator. Most appeared to enjoy the task. Nearly everyone expressed interest in the meaning of his performance and many requested interpretations. Motivation of both normals and patients seemed high.

Coloured, gummed pieces of paper of the same shape as the plastic pieces and half their size were used for recording the designs. The colour shades were closely matched to those of the pieces. The designs were then permanently recorded on 8½ inches by 11 inches squared paper (⅛ by ⅛ inches). A base line was ruled in 6 squares up from one of the longer sides of the paper and parallel to it, making the record precisely proportional to the actual design (and one-half its area). For most records when one piece is exactly determined the positions of the others are automatically determined. In a few instances estimation of position had to be made but the error was seldom great enough to be obvious to inspection.

This recording method possesses several advantages. It provides a quick and easily obtained permanent record which is readily handled. Colours are much closer to the originals than crayon or coloured pencil recordings. It is not necessary to trace the plastic pieces, and the loss of gummed pieces is negligible.

Development of the Scoring Categories

The attempt to define scoring categories for a projective test poses a major dilemma. On the one hand clinicians insist data from a projective test must be viewed as a total pattern. On the other hand the test cannot be scored unless certain aspects

of the data are abstracted and subjected to quantitative treatment. In theory, as Cronbach (2) points out, one can conceive of a multi-score test, with all the data elicited considered simultaneously, one score at a time. However, no statistical methods of handling many scores simultaneously are yet available.

As a partial solution to the dilemma, for this research the position was taken that, while no single quantitative Mosaic Test variable would be a valid indicator of a personality trait in one individual, significant group differences would appear which would have clinical meaning. By utilizing several of these significant scores as "signs" individual subjects might be validly diagnosed.

The scoring categories were derived from the literature and clinical experience with the test, keeping in mind the necessity of quantitative items. A preliminary list of 45 scoring categories was developed and a pilot study was conducted on 35 clinical subjects, whose designs were scored according to these categories. Several were eliminated as being difficult to quantify, infrequent of occurrence, or psychologically insignificant. Others were then added and subjected to a second pilot study conducted on 20 schizophrenics, 20 neurotics, 15 organics and 20 normals. Comparison of group scores disclosed differences of considerable size although they were not immediately tested for statistical significance. A further refinement of the scoring was then undertaken which resulted in the form described below.

In the selection of categories, two principles were kept in mind, the first was objectivity, the second that of choosing categories which appeared to have clinical meaning.

In several instances these principles appeared to be incompatible. It was not possible to retain only rigorously objective categories. Certain of them depend on the judgment of the observer. In these cases an attempt was made to give them operational definition. Examples were provided to serve as illustrative criteria for judging, following the procedure used for scoring many items of the Binet Intelligence Test and also employed by Pascal and Suttell (11) for the Bender-Gestalt test. The scoring categories range from those which are completely numerical and simple through an intermediate range to a few with a relatively high degree of subjectivity and complexity. They are described in the following section.

Colour

Percentage Area. In view of the wide attention paid to colour and the inconclusiveness of the reports on its use it seemed essential to record colour phenomena. In order to permit colour comparison among the designs the percentage area was calculated. This is similar to Rorschach scoring where location scores are expressed in percentages.

Number of Colours. The absolute number of colours used was recorded since Wertham (13) has reported that normal individuals use a greater number.

Percentage of chromatic colour. It has been stated that schizophrenics use a smaller percentage of total chromatic colour (red, green, blue and yellow) (13) and this was also recorded.

Colour pairs. A large proportion of certain chromatic colours in a design are said to indicate particular affective qualities in the individual tested. Much blue and black are said to indicate depression (13), blue and green controlled reactivity and red and yellow heightened affective reaction. The percentage areas of these pairs of colours were summed and recorded as separate scores.

Colour symmetry. This was defined as occurring when a design could be folded on any axis so that the halves would mirror each other, the colours coinciding. Colour symmetry was scored in four sub-categories: perfect

symmetry, near-perfect (less than 10% error), attempted symmetry and no symmetry. (Symmetry of form was scored in precisely the same way.) In a few instances several designs were made. If one large design was symmetrical the whole was scored as such.

Colour patterning. This was listed simply as present or absent. It was defined as the use of colours appropriate to representation of an object or scene, or the recurrence of two or more colours in a similar spatial relationship three or more times in a design. Where the total number of pieces was no greater than ten, patterning was scored if two colours were in a similar relationship twice.

Colour separation. The category was scored when a solid block of pieces of one colour was found in a design or when one of two or more designs on the tray was entirely of one colour.

Colour combinations. In preliminary observations the use of certain colour combinations in designs, namely white and black, white and yellow, white and green, white and blue, white and red and black and yellow appeared to coincide with the diagnosis of schizophrenia. A score was recorded if the two colours in combination occupied a minimum of 50% of the total area except in the case of black and white when 25% was the minimum. The decision to use these limits was based on the belief that these colour combinations, even when found in part of a design, signified the sort of emotional withdrawal found in schizophrenia.

Shapes

Percentage area. The percentage area covered by each shape was calculated because clinical experience indicated that severe dysfunction resulted in the use of a larger percentage of "simple" (i.e. more regular) shapes.

Regularity index. This was arrived at logically and scored for each design. The square and equilateral triangle have equal sides and angles and may be considered the most regular of the shapes. The diamond has equal sides but the angles are not equal. The isosceles triangle has only two equal sides and two equal angles. Parallel sides of the oblong are equal but those adjacent are unequal. These three may be considered roughly equivalent in regularity. The sixth shape, (scalene triangle) with unequal sides and unequal angles is manifestly less regular. Each square and equilateral triangle was assigned a weight of one, each isosceles triangle, diamond and oblong a weight of two, and each scalene triangle a weight of three. These were added and the total divided by the total number of pieces in the design to secure an index of regularity of shape for each design. An exception was made to this procedure when only one shape was used. An arbitrary index score of one was given. It will be noted that for this category a low index represents the use of more regular shapes. The rationale for the index was the expectation that a high index score would be related to the subject's capacity for organization. While it was realized that incoherent designs would introduce an element of error the index seemed worth an empirical test.

Number of shapes. The absolute number of shapes was counted for each because the more severely disturbed have been found to use fewer shapes (13).

Characteristics of the total design

Total number of pieces. Wertham (13) has reported that psychotics use fewer pieces. Accordingly the number of pieces in each design were counted.

Total area. This was required for the calculation of percentages of shapes and colours. Although some relationship might be expected between total area and number of pieces the shapes differ in area and the two scores might have different clinical meanings.

Multiple designs. These have been

reported for both mental defectives and schizophrenics (10, 13). Usually this category was easy to score but occasionally a subject introduced into his design repetitive figures in which it was hard to tell whether he had made one pattern or several. This was usually resolved by accepting the subject's response to questioning on the point.

Tray area occupied. It was observed that designs differed markedly in this regard. It seemed possible this variable might be clinically significant. The score was derived by placing a sheet of plastic, ruled in one inch squares, over the record and counting the number of squares touched by the design.

Compactness. The degree of compactness or scatter is credited by all Mosaic Test workers as of high validity. Two methods of appraisal of this characteristic were used. In the first method, a strictly quantitative one, an index was derived by dividing the total area of the pieces by the tray area. A compact design has a high index and a scattered design a low index. This procedure had one objection, namely that small designs gave a systematically low index for which no correction could be devised.

A three-step judgmental rating of the designs for degree of compactness was also made. A design was rated compact when all the pieces touched and there were no spaces inside the body of the design. A design was rated intermediate or less compact when most of the pieces touched adjacent ones but spaces occurred between pieces. Those in which most of the pieces were isolated were rated as scattered.

Concrete – abstract. The designs were rated as concrete or abstract. If two or more designs were made by a subject, one of which was easily identified as a concrete object, the entire production was scored as such. Designs were scored as abstract even though the subject assigned some utility to them such as "quilt pattern" or 'for a bathroom floor." In the great majority of cases the subject's statement concurred with the examiner's judgment of the design. Concrete designs were subdivided into the following classes: house, flower, landscape, religious, seascape, human and miscellaneous. The abstract designs were subdivided into categories of squares, rectangles, hexagons or octagons, and others.

Projections. Colm (1) and Wertham (13) have commented on the significance of jutting pieces. Designs in the present investigation were scored for three sorts of characteristics involving projecting pieces. The first is that in which the whole design resembles a missile of some sort, such as an arrow, spear, or bomb, or a weapon such as a gun. The second class of projections is found in designs which in the center are fairly compact but have pieces jutting out unmistakeably. The third class is one in which a subject has constructed one or more long extensions of a main design.

Completeness of design. All workers have stressed the importance of a complete Gestalt as an indication of a healthy design. Since no rigorously quantitative method of scoring this is possible it was rated on a four fold scheme. The first is one in which both abstract and concrete patterns were rated complete. An abstract pattern was rated complete when it was symmetrical about an axis or the blocks were otherwise systematically arranged. Colour was not considered. A concrete pattern was rated complete when it obviously achieved a representation of its object. In descending order of completeness the three other possible ratings given are: 2–slightly defective, 3–markedly defective, and 4–no discernible pattern.

Complexity. Examination of a large number of designs revealed a dimension ranging from very simple to very complex. Designs were rated for this variable on a four point scale to reveal gross differences. The steps in the scale are: 1–very simple, 2–rela-

tively simple, 3—fairly complex and 4—very complex. The notion of complexity involves the interaction of a number of factors such as the elaborateness of the plan, the number of the shapes and colours used and the way they are employed.

Aesthetic quality. Most subjective of all the scoring categories is a gross four point rating of aesthetic quality. These steps are: 1—little or none, 2—moderately pleasing, 3—above average and 4—superior.

Design location on tray.

Horizontal localization. Each mosaic was categorized on this variable as central, left, left center, right, right center, all over or unclassifiable. Central position was defined as that in which the vertical axis was at the center and the design did not extend more than half way to the sides of the tray. Left and right designs were those entirely within the left or right halves of the tray. Intermediate values were assigned those which overlapped the center but where the axes of the design were not central. When the localization was doubtful a sheet of clear plastic the size of the recording sheet, on which horizontal and vertical central axes had been ruled was used to determine the issue.

Vertical localization. The designs were similarly categorized for vertical localization. These sub-categories are: central, upper, upper center, lower, lower center, all over and unclassifiable.

Margins. The presence or absence of pieces at the margin of the tray was noted and the position or positions of the margin recorded when such were present. A score was given only when the edges of two or more pieces unmistakeably fitted against the tray margin.

Time. The time used in constructing a design was recorded to the nearest minute.

These are the categories which have been used in scoring the test designs. Every design has many other aspects which might have been considered. The categories adopted include most of those which have been mentioned in the literature plus some originals. Some characteristics that have been mentioned by others, including supersymmetry (13), making of three dimensional designs (3) and repetition of simple designs (13) have been omitted because preliminary examination of the data showed that they rarely occurred. All categories derive from the finished design only, since Himmelweit and Eysenck (7) and Diamond and Schmale (3) found that systematic attempts to record and evaluate the subjects' methods of working add little to the clinical utility of the test.

Subjects

There were three groups of patients used as subjects; 70 schizophrenics (12 catatonic, 23 paranoid and 35 unclassified), 48 psychoneurotics (13 hysterics, 13 anxiety neurotics, 3 obsessive-compulsives and 19 diagnosed as reactive depressions) and 20 with organic brain disease. In the last group were four cerebral arteriosclerosis patients, three Huntington's chorea, three presenile dementias with the remainder given a number of other diagnoses.

These constituted almost the entire population, for a fifteen month period, of unequivocally diagnosed patients of these categories who were referred for psychological testing at the Toronto Psychiatric Hospital. The diagnoses were made in conference by a minimum of four psychiatrists. Except for twenty-two of the schizophrenic group these patients were first admissions to mental hospital although some had been in a nursing home earlier. A comparison of the designs of schizophrenics who were first admissions and those who had more than twelve months' hospitalization was made and no significant differences were found.[2]

[2] This finding was not the one predicted. It does not prove there is no difference be

The control subjects used for comparison with the patients numbered 107, 31 men and 76 women. Eighteen were farmers, their wives and adult children. There were 29 affiliate and nine graduate nurses, 11 vocational guidance clients at the Y.M.C.A. counselling service, 20 members of the "so-ed" committee and 17 other urban subjects. None of these was under treatment for mental illness or had a history of such so far as could be ascertained.

This group of control subjects is the largest and most diversified yet reported in the Mosaic literature. While it cannot be considered entirely representative of the population at large, it was assumed to be sufficiently so that valid generalizations could be derived from the study.

It was impossible to equate the groups on sex, age, education and intelligence. All groups had more women than men. The mean age of the normal group was 25 years, of the schizophrenic and neurotic groups 30 years and of the organic group 44 years. The normal group averaged nearly 13 years of education, the schizophrenic and neurotic group averaged slightly over 10 years and the organic patients slightly more than 8 years. As a check on the subjects' intelligence the Shipley-Hartford Vocabulary Test (12) was given to each. The mean of the normals was 32.2, of the schizophrenics 26.9, of the neurotics 27.8 and of the organics 22.9.

As a rough check of the possible relationship of age, education and intelligence upon Mosaic Test characteristics chi-square tests were made by comparing the upper 50% of the normal group with the lower 50% for each Mosaic Test scoring category. The following significant relationships were found: (1) The older subjects used a larger proportion of chromatic colour ($P<.05$); (2) The more highly educated used all six shapes more often ($P<.01$); (3) The designs of the more highly educated were rated more complex ($P<.02$); (4) Vocabulary score was found to be related to total number of pieces used ($P<.05$); (5) Vocabulary score was related to ratings of complexity ($P<.05$) and the Vocabulary score was related to ratings of aesthetic quality ($P<.01$).[3] On the whole the relationships of age, sex, intelligence and education to Mosaic Test characteristics appear to be slight.

Method of Data Analysis

In this study data were obtained from 245 test designs, each of which was scored for 39 characteristics by the investigator. Five other attributes of the subjects required statistical evaluation, and the data from three subsidiary investigations also had to be analyzed. In all, more than 600 group comparisons were needed. To facilitate analysis the data for each subject was punched on a separate Hollerith card.

For each of 39 test categories the normal group was compared with each of the three patient groups. Each patient group was compared with the other two to discover categories with particular value in differential diagnosis.

The statistical method of comparison used was the method of chi-square. Differences in the groups were considered significant when chi-square for one degree of freedom reached 6.64 ($P<.01$) and suggestive of significance but requiring confirmation when chi-square reached 3.84 ($P<.05$). In testing for significance of differences Yates' correction for continuity was employed when an expected frequency was less than ten.

For the comparison of groups on a particular scoring category the punched cards for each group were

tween the Mosaics of acute and chronic cases. Many illnesses are of two or more years' duration when the patient reaches hospital. It is likely there were chronic cases in both groups.

[3] This finding is opposed to that of Himmelweit and Eysenck (7).

sorted into class interval frequencies. In comparing the groups the frequencies were dichotomized and fourfold tables derived. From these tables chi-squares were determined. When a category was a continuous variable the dichotomy was made at the class interval nearest the median for the normal group. When a category was discontinuous or bimodal two or more chi-squares were calculated. The frequency tables of all the subject groups were dichotomized at the same point or points when groups were compared on particular test variables, in order to ensure no advantage was taken of chance frequency fluctuations.

Consistency of scoring.

A major requirement of a valid test is that trained examiners will show consistency in scoring the test. Consistency of scoring the Mosaic Test was checked by having an experienced psychologist rescore designs of 34 patients. These are presumed to be a random sample since they comprise all the designs secured from patients in a two month period. The psychologist, who had little knowledge of the test, was trained on a group of 30 designs by the investigator before scoring the designs employed in the study of scoring consistency. She scored the designs without knowing the patients' names, diagnoses or other identifying information. It must be pointed out that it would have been preferable to have all the test designs scored by one or more psychologists who knew nothing of either the Mosaic Test or the patients' diagnoses. These optimum conditions could not be provided. The investigator who scored the tests himself, knew the claims made for the test in the literature and the provisional diagnosis of about half the patients at the time the tests were scored. It is possible these defects in design might have influenced the results. The investigator made a conscious attempt to be unbiased by his knowledge. The best evidence to his success in this regard is that obtained from the analysis of scoring consistency which is reported below.

The statistic used for determining the consistency of the scoring was the phi coefficient, obtained from fourfold tables by dichotomizing one distribution at the median. As was pointed out above this coefficient may be used with discontinuous variables, as are some of those employed in this study (e.g. localization), although it must be recognized as not strictly comparable to the Pearson. According to Guilford (5), dividing the obtained coefficient by .637 will make the two comparable, but the N of 34 is probably too small to warrant this correction.

All the obtained coefficients reached or exceeded .59, a figure comparable to a Pearson r of approximately .90, except the rating of aesthetic quality which approximated a Pearson coefficient of .63 only.

Consistency of Mosaic Test characteristics.

All those who have discussed the problems of the reliability of projective techniques agree that the use of the usual psychometric methods for determining reliability of a test yielding quantitative scores on a single dimension are inadequate for determining the reliability of projective material. Macfarlane and Tuddenham (9) state that matching procedures yield ambiguous assessments because they confuse test and judge. The use of temporal indices is precluded if one believes personality changes through time and the use of alternative forms brings unambiguous results only when the test is constructed on a systematic basis. They conclude:

> " . . . But since reliability is implied by validity it is perhaps possible to circumvent the difficulties involved in measuring reliability provided that one can demonstrate that his test makes possible valid predictions with respect to other variables."

While one may agree in the main

with these authors it seems reasonable to assume that personality characteristics are stable over a period of time. It seemed equally reasonable to expect Mosaic Test characteristics to show consistency on repeat testing within a relatively short time interval. It is not likely that two designs by the same person will approach identity. Patients frequently remark that because they have made a certain object or used certain colours or shapes they will use or construct something different on the second occasion. However it was hypothesized that if the test was valid, retesting would show that many test characteristics were consistent.

Subjects from two new groups made two designs each. One group comprised 32 unselected patients of varying diagnoses; the other 36 subjects were second and fourth year honour psychology students. It was hypothesized that normal subjects and patients would both show consistency in their designs but that the patients would be more consistent. This hypothesis was based on Wertham's (13) statement that the Mosaic Test reveals personality disturbance much more clearly than it does the characteristics of the normal personality.

Of 37 Mosaic Test scoring categories in the study (colour pairs and number of designs could not be included in the consistency study) seven had consistency coefficients significant at or beyond the one percent level for both groups of subjects. These categories are: number of colours, number of shapes, number of pieces, total tray area, symmetry of form, concreteness and complexity.

Six other categories reached the same level of significance for the patient group only. These are colour symmetry, colour patterning, percentage of diamonds, area of mosaic pieces, projections and time. The compactness index and rating were similarly significant for the university students only.

Nine other categories showed some evidence of consistency (five percent level of significance for one of the two groups). These categories are: percentage of yellow, blue, black, oblongs and diamonds, colour separation, regularity index, horizontal localization of the designs and the use of the margin of the tray.

For 13 categories the consistency coefficients were not significant ($P<.05$). Most categories of percentages of particular shapes and colours proved unreliable. This was true also of total percentage of chromatic colour, vertical localization and aesthetic quality.

In general the retest consistency of the categories was higher for the patients. This was predicted earlier on the basis of Wertham's (13) observation that the designs of patients reflect dominant personality characteristics to a greater extent than do the designs of normal subjects.

For those categories where both phi coefficients and Pearson's r's were calculated, r was invariably greater. This suggests that where the phi coefficients only were calculated the obtained values are considerably lower than a Pearson r. This strengthens confidence in the consistency of the categories.

Fifteen of the scoring categories are deemed sufficiently consistent for analysis of group tendencies. They are of approximately the same order as the reliability coefficients reported by Hamister (6) for certain Wechsler-Bellevue subtests (picture arrangement r .66, digit span r .59, block design r .71).

Several other less reliable categories are considered to be of possible utility. These require further checking by further consistency studies.

RESULTS AND DISCUSSION

The results.

The results of the group comparisons on each of the 39 scoring categories are presented in Table I. The parallel presentation of the results for all groups will enable the reader to grasp more readily similarities and differences in test characteristics of

TABLE I—Results From Chi Square Comparison of Groups on Mosaic Scoring Categories (P Values)

Legend: N = Normal, S = Schizophrenic, P = Psychoneurotic, O = Organic

Category	N–S	N–P	N–O	S–P	S–O	P–O
Red %		.01 (P)				
No red						
Green %						
No green	.01 (S)	.05 (P)	.04 (O)			
Blue %						
No blue						
Yellow %	.05 (N)			.01 (P)		
No yellow	.01 (S)			.04 (S)		
Black %						
No black						
White %	.01 (S)			.001 (S)		
No white						
No. colours	.003 (N)		.01 (N)			
Total colour %	.01 (N)			.01 (P)		
Blue and black %						
Blue and green %	.05 (N)	.03 (N)				
Red and yellow %						
Col. comb.	.02 (S)		.001 (N)			
Col. symmetry	.05 (N)					
Col. pattern	.01 (N)		.001 (N)	.03 (P)		.001 (P)
Col. separation	.01 (S)					
Square %	.04 (S)					
Equilat. tr. %						
Diamond %						
Isosceles tr. %	.04 (N)					
Scalene tr. %						
Oblong %			.02 (N)		.04 (S)	.01 (P)
No. shapes		.05 (N)				
Regularity index	.005 (N)	.005 (N)	.005 (N)			
No. pieces			.001 (N)		.02 (S)	.02 (P)
Total area of pcs.	.05 (N)		.001 (N)		.05 (O)	.04 (P)
No. of designs	.001 (S)	.001 (P)				
Total tray area			.001 (N)			.02 (P)
Compactness index	.05 (N)					
Compactness rating	.03 (N)		.02 (O)			.05 (O)
Symmetry (form)	.001 (N)		.001 (N)	.05 (P)		.03 (P)
Concrete-abstract						
Concrete (seascape)	.04 (N)					
Concrete (religious)	.02 (S)					
Abstract (geom. fig.)		.03 (P)				
Projections (missiles)	.05 (S)					
Projections (jutting pcs.)						
Completeness	.001 (N)		.001 (N)	.005 (P)	.04 (S)	.001 (P)
Complexity	.001 (N)	.001 (N)	.001 (N)		.02 (S)	.03 (P)
Aesthetic quality	.001 (N)	.04 (N)	.001 (N)	.05 (P)		.001 (P)
Horiz. local. (left and left center)				.01 (P)	.01 (O)	
Horiz. local. (all over)					.02 (S)	
Vert. local. (all over)						.04 (P)
Margins (bottom)	.03 (N)					
Time		.04 (P)			.04 (S)	
No. significant differences (P .05)	26	10	14	9	8	11

the four groups of subjects.

It will be observed that for certain categories two or more comparisons were required. The table shows significant chi square P values, i.e. those which are .05 or lower, .05 being the level accepted for this investigation as probably significant. In the comparisons the group exhibiting the higher frequency of a given Mosaic Test characteristic is indicated by an initial letter.

Of the 39 test categories 17 showed very significant differences ($P<.01$) between the normals and one or more of the patient groups. Another 15 categories showed differences that were probably significant ($P<.05$).

In the comparisons of the normal and the patient groups some two hundred separate comparisons were made. It is to be expected that two differences at the .01 and ten at the .05 level of significance would be obtained by chance. In actual fact 21 significant differences were obtained at the former level and 24 at the lower level of significance. On the whole, the categories proposed and tested in this investigation have been found to possess a considerable degree of validity.

The only categories which appeared to have no diagnostic validity were the percentages of blue and black colours, the percentage of red and yellow together, the percentage of three shapes (diamonds, equilateral and scalene triangles) and the concrete-abstract dichotomy. In general those categories concerned with particular colours or shapes appear to have less diagnostic usefulness. For the most part more complex categories which involve elements of judgment have been found to be of greater validity and reliability than the simple, completely objective categories.

One of the most prominent characteristics of normal mosaics is the use of four or more colours. (Eighty-two percent of the normals did so, 71% of the neurotics, 65% of the organics but only 40% of the schizophrenics.) The normals tend to avoid the use of much white. Their designs may be abstract or representational. Most of their abstract designs show symmetry of both colour and form. They seldom make designs with large blocks of solid colour and the colours they use are patterned in a pleasing way.

The normal person uses more of the shapes. (Fifty-eight percent use four or more, compared with 44% of the neurotics, 47% of the schizophrenics and 40% of the organics.) They use a higher proportion of those pieces, scalene and isosceles triangles and oblongs, which are less regular. They tend to construct designs with a greater total block area. Less than 10% make more than one design. Their mosaics are rated more often as compact, complete in pattern, aesthetically pleasing and complex.

Characteristic of schizophrenics is the relative neglect of chromatic colours. Green and yellow are frequently left out of the mosaic and a large percentage of white is present, often used in combination with one other colour; yellow, blue, green or black, but seldom red. Although some use all the colours only a small proportion of these subjects do so and the colours in these instances are probably used without regard to colour patterning or symmetry. Frequently schizophrenics make a whole design, or a large part of one, of a solid colour. These findings are in essential agreement with those of Diamond and Schmale (3) and Wertham (13).

Turning to the form elements of the test designs it is seen that schizophrenics tend to use squares and other simple pieces to a greater extent than the normals, although this tendency is also found in neurotics and organics. They make multiple designs more frequently than normals or organics and the designs are more likely to consist of scattered pieces. Perfect symmetry is found less often, the designs are frequently simple, incomplete and of little aesthetic quality. Schizophrenics make missile-like designs or religious symbols more often than do other subjects but only a limited number (under 15%) do so.

Several kinds of patterns are typical of schizophrenia. White and black pieces or yellow and black, when used alone to make an abstract design, are almost pathognomonic. However, if the pattern is complete and fairly complex it may indicate merely a

schizoid process in a patient who does not exhibit unusual ideas or behavior. Even when a patient initially employs black and white and later discards these pieces the possibility of schizophrenia must be considered. The use of white in combination with any one of the chromatic colours to form a two colour design is similarly suggestive. The poorer the organization of such designs, the more likely that the patient who made them is frankly schizophrenic.

Another schizophrenic pattern is that in which a few pieces (less than 15) are employed and no regard is paid to colour, shape or the construction of a pattern. These pieces may be placed so that the resulting mass is compact, they may be strung out in a chain or they may not even touch. The important characteristic is that no pattern can be discerned. Patients making such designs are usually chronic patients who maintain little contact with reality.

The construction of several small abstract patterns, some of which are of one colour only, is usually suggestive of schizophrenia. Other types might be described but those given are the ones which provide the clearest evidence of this type of illness.

The investigation disclosed few precise indicators of neurotic illness. The neurotics use a high proportion of red more often than any other group of subjects and less blue and green. They use fewer and simpler shapes than normals or schizophrenics. Like the schizophrenics they may make more than one design. Their designs are usually complete but they tend to be relatively simple and are more often geometric shapes (square, rectangle, hexagon or octagon) than are the designs of other subjects. Some neurotics require a particularly long time to make their designs.

Organic patients show a somewhat restricted use of colour in their designs. They use fewer colours than the normals and their designs show colour patterning less frequently. They seldom employ oblong pieces. Their designs are small, simple and compact (none of the organic subjects made a scattered design). Characteristically they attempt to construct a symmetrical design but fail in the effort and the design is unpleasing. Their designs exhibit many of the same characteristics as do the schizophrenics, the chief differences being that the schizophrenics use less chromatic colour, more pieces, and a larger proportion of oblongs. The schizophrenics also make scattered designs oftener; the designs are more complex and more often complete.

Discussion of results.

According to the projective hypothesis the personality of the subject is the most important determinant of the response to a test of organization and expression such as the Mosaic Test. The design he produces is presumed to show characteristics which are typical of his responses to many other life situations. Assuming the correctness of the projective hypothesis the next question is that of matching the empirically obtained differences between groups in Mosaic Test performance with other types of behavioural differences which have been generally recognized as valid by clinicians.

The following considerations are tentative and must be confirmed or rejected by future research.

Colour. Examination of the group differences in the use of colour shows that the normal subjects use some green more frequently than any of the patient groups, and a large percentage of red less frequently than the neurotics. Neurotic persons experience anxiety and tension to a greater extent than normal individuals. It is therefore reasonable to conclude that the use of much red in a design may indicate a large degree of consciously experienced anxiety or perhaps more broadly, a high emotional tone. Since normal individuals are more likely to control their expression of emotion

it is equally reasonable to conclude that the utilization of some green in a design may represent a higher degree of emotional control than when it is not present.

One of the most prominent differences is the greater use of white by schizophrenics than by the other groups. In many instances white is used with only one other colour. Conversely one would expect the other subjects to use a larger proportion of chromatic colour and this is indeed true. The schizophrenics also use solid blocks of colour in their designs or construct them of one colour only.

A very frequent clinical symptom of schizophrenics is some disturbance of emotional responses. These patients are apathetic or show an inappropriate affect. It is the investigator's opinion that the use of white and other types of disregard for the chromatic colours is evidence of disturbance in affect.

Differences between groups in the degree of colour patterning may have a somewhat different meaning. The schizophrenics do not pattern the colours as frequently as the normals, which may be due to affect disturbance. The organics, however, use colour patterning even fewer times. They do not show the other types of colour disturbance but their designs were rated significantly less complete and complex than those of the other subjects. It is likely that the use of colour patterning is in part a product of the subjects capacity for organization.

Regularity of shapes. The normals employed pieces which were less regular more often than all the other groups of subjects. From observation of their work it seemed that they enjoyed the challenge provided by the less regular pieces. Their attention was not reduced by anxiety as was frequently the case with the neurotics; they were not preoccupied by their own fantasies as were the schizophrenics; nor was their capacity for organization impaired by brain disease as were the organic patients. The normals were able to direct their attention more completely to the stimulus materials. The use of the less regular pieces along with a larger number of different patterned colours is probably related to the subjects' creative ability.

Multiple designs. A surprising observation educed by the study is that both neurotics and schizophrenics make multiple designs more frequently than normals. Previously only schizophrenics were reported to do so. The multiple designs of schizophrenics are more frequently abstract, less complete in pattern and tend to be more repetitive than those of the neurotics. They appear to be the result of perseveration due to preoccupation, whereas frequently the multiple designs of neurotics seem to be efforts to impress the examiner.

Compactness. The normals and the organics tend to make more compact designs. It is doubtful if compactness in a design has the same psychological meaning for all groups. The organic subjects place the pieces together because the edge of one tile provides a place to put the next one, many of the shapes having one edge the same length as a different piece. The organic subject is delighted to find a spot where the second piece will "fit." He proceeds in this way till he has a compact figure. This type of performance is perhaps the result of inability to retain any detailed plan in the mind as a model for the final product.

The normal individual who constructs a compact design will probably make his pattern vastly more complex. It is the investigator's impression that subjects making these designs are persons who stress a high degree of emotional control and who have strong security needs which they are satisfying relatively well. They are "well-adjusted conservatives." Persons making scattered designs appear to be more volatile emotionally. Normals who make non-compact designs of considerable complexity are usually imaginative and capable of enjoying

a wide range of affective experience.

Number of pieces. The organics use fewer pieces than the other subjects. This seems to be due to the fact that their level of organization (their designs are rated the simplest also) is limited by their mental dysfunction. Other subjects may use few pieces because they involve themselves very little in the task, either from dislike of it or from preoccupation with other things. Hysterical patients among the neurotics use fewer pieces. This is in line with results obtained from level of aspiration experiments in which hysterics are found to be satisfied with a lower degree of effort than other neurotics.

Completeness and complexity. The completeness and complexity of pattern are two aspects of designs which are presumed to be related to the individual's capacity for response to a variety of life situations. The designs of normals are both more complete and more complex than those of the patient subjects. The neurotics are less complex but not significantly different in regard to completeness. The schizophrenic group rates next while the organics are considerably inferior in this respect. The ranking of the subjects' mosaics in these categories parallels clinical experience closely with regard to the capacity of the groups of subjects to deal with their life situations. It seems reasonable to suppose then, that even within a group of normal individuals those making very complete and complex designs are more likely to deal adequately with their life situation than those whose designs show less of these qualities.

Summary

From the literature and clinical experience with the test, 39 scoring categories for the Lowenfeld Mosaic Test were developed and given operational definition where possible. The test was administered to 107 normals, 70 schizophrenics, 48 neurotics and 20 organic subjects. The scores of the patient groups were compared with those of the normal subjects. Studies of scoring and retest consistency were also undertaken.

Of the 39 test categories 32 showed significant differences between the normal subjects and one or more of the patient groups. The schizophrenics showed the greatest deviation from the normal group in Mosaic Test characteristics. The organics differed nearly as much, with the neurotics showing fewer differences. Age, sex, intelligence and education were found to have only slight influence on Mosaic Test performance. Consistency of test scoring was satisfactory. Retest consistency for the test categories ranged from low to high, with some of the inconsistent categories showing significant validity. It was concluded that quantitative procedures may be employed with the Mosaic Test and that the scoring categories utilized have considerable diagnostic validity.

References

1. Colm, Hanna. The value of projective methods in the psychological examination of children: the Mosaic Test in conjunction with the Rorschach and Binet tests. *Rorschach Res. Exch.*, 1948, *12*, 216-237.

2. Cronbach, L. J. Statistical methods for multi-score tests. *J. Clin. Psychol.*, 1950, *6*, 21-26.

3. Diamond, B. L. and Schmale, H. T. The Mosaic test: I. An evaluation of its clinical application. *Amer. J. Orthopsychiat.*, 1944, *14*, 237-250.

4. Dörken, H. Jr. The Mosaic Test: review. *J. Proj. Tech.*, 1952, *16*, 287-296.

5. Guilford, J. P. *Fundamental statistics in psychology and education.* New York: McGraw-Hill, 1942.

6. Hamister, R. C. The test-retest reliability of the Wechsler-Bellevue intelligence test (Form I) for a neuropsychiatric population. *J. Consult. Psychol.*, 1949, *13*, 39-43.

7. Himmelweit, H. T. and Eysenck, H. J. An experimental analysis of the Mosaic projection test. *Brit. J. Med. Psychol.*, 1945, *20*, 283-294.

8. Lowenfeld, Margaret. The Mosaic Test. *Amer. J. Orthopsychiat.*, 1949, *19*, 537-550.

9. Macfarlane, Jean W. and Tuddenham, R. D. Problems in the validation of projective techniques. In Anderson, H. H. and Anderson, Gladys L. (eds.) *Projective Techniques.* New York: Prentice-Hall, 1951.

10. McCulloch, T. L. and Girdner, J. B. Use of the Lowenfeld Mosaic Test with mental defectives. *Amer. J. Ment. Def.*, 1949, *53*, 486-496.

11. Pascal, G. R. Gestalt function: the Bender-Gestalt, Mosaic and World tests. In Brower, D. and Abt, L. E. (eds.), *Progress in Clinical Psychology*, vol. I. New York: Grune & Stratton, 1952.

12. Shipley, Walter C. Scale for measuring intellectual impairment. Hartford: The Institute of Living, 1946.

13. Wertham, F. The Mosaic Test: technique and psychopathological deductions. In Abt, L. E. and Bellak, L. (eds.), *Projective Psychology*. New York: Knopf, 1950.

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BOOK REVIEWS

Andrew, Gwen; Hartwell, Samuel W.; Hutt, Max L.; and Walton, Ralph E. *The Michigan Picture Test.* Chicago: Science Research Associates, 1953.

The *Michigan Picture Test* is a TAT-like test for "the evaluation of emotional reactions of children eight to fourteen years of age . . . [It] consists of sixteen pictures. Four of these pictures are used with boys only, and four are used with girls. Thus, only twelve cards are presented to any one child. A short screening test can be administered using four core pictures." A verbal description of the four core cards is as follows: Card 1, A family of four at the table. The man is reading the paper, and the woman is feeding the boy; Card 6, Mixed group of children playing checkers; Card 9, Long streak of lightning on black background; and Card 12, The blank card. The other cards depict scenes in a schoolroom, bathroom, in the country, etc.

The task of reviewing a new projective technique is a complex assignment, inasmuch as there are several aspects which may require evaluation. For example, in the case of the *Michigan Picture Test* a reviewer might comment on (a) the *conception* of the test, *i.e.*, the basic soundness of the over-all test idea; (b) the *appearance* of the test, *i.e.*, the format, physical construction, and printing quality of the test materials; and (c) the *manual* of the test, *i.e.*, the treatment and presentation of norms, reliability data, validation, etc. Following this line of approach, this review of the *Michigan Picture Test* will be in terms of the following specific questions and general answers.

1. *Was this test necessary?* This is admittedly a critical question, but it is a basic one. One has to ask such questions as: How does this test differ from, or add to, the TAT? In what ways is it an improvement over Symond's Picture Story materials? Or, over the Travis-Johnston Projection Test? Or Bellak's CAT? Further, is it sound psychological practice to prepare a different set of picture-thematic materials for each age group? And, to what extent should psychological test materials be tailor-made for specific age, ethnic, and political groups?

There are TAT-like materials specifically for physically handicapped subjects, Negro subjects, Hindu subjects, Chinese subjects, Korean Prisoners of War, for children between the ages of 3 to 10 (CAT), 4 and 15 (Travis-Johnston), 12 and 18 (Symonds), and now (with the Michigan Picture Test) between 8 and 14. This is not unlike the fact that there are also sets of materials for specific American Indian Tribes. This reviewer feels like Dr. Robert Holt[1] when he wrote: "So the NAT/Navaho Apperception Test/and the UAT/Ute Apperception Test/are joining the CAT/Children's Apperception Test/, VAT/Vocational Apperception Test/ and the rest of them. Soon we'll get to the ZAT, and there I hope the new variants will stop, because zat's enough."

A more severe criticism lies in the neglect of the Michigan authors to relate their new materials (no matter how good) to previous materials, especially *the* TAT. This error of omission is a conspicuous shortcoming in their project. One is reminded of Dr. Holt's comments in a similar vein in his review[2] of Symonds' test.

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[1] Holt, Robert R. The TAT Newsletter (Vol. V, No. 2). *Journal of Projective Techniques*, 1951, *15*, 410-414.

[2] Holt, Robert R. Book Review of Percival Symonds' "Symonds Picture Story Test." *Rorschach Research Exchange and Journal of Projective Techniques*, 1949, *13*, 346-349.

2. *Are the test materials appropriate? Are the paper and the printing of good quality? Are there any distracting features in the test materials?*

In the manual for the test there is a chapter on "the selection and appraisal of test pictures." The authors have evidently thought about the problem of selection and know the relevant literature. In addition, they have evolved a set of seven criteria which each picture should meet. It seems disappointing, then, after all this effort that one reads in the manual that "the selection of the areas of conflict to be sampled by the Michigan pictures was an 'armchair' process which we could only hope would be adequate . . . we were developing the scoring methods and the test pictures concurrently. We were forced, therefore, to evaluate the scoring in terms of pictures which had been selected on an *a priori* basis. . . . This fact implies the need for future revision of the test." Little is stated as to how the pictures were actually selected.

The pictures are printed on 8½ by 11 inch cardboard stock. There are some picayune comments which can be made about the printing: the differences among the pictures in the quality of the printing could be disconcerting. For example, the first picture is rather "grainy," the second somewhat artistic, and the third rather severe—they do not look like a *set* of pictures, but this may be of no importance in a projective technique. Card 3 (schoolroom scene) is not unstructured or ambiguous, rather it is almost camouflaged; A few subjects I tried it on simply did not see the little boy standing. On the other hand, one must remember that the test is proposed as a tool of science, not a work of art.

3. *To what extent does the test manual satisfy the (applicable) desirable criteria for an optimal test manual? Is the manual clearly written and well organized?* The specific questions here might well be phrased in terms of how the manual measures up to the "Essential," "Very Desirable" and "Desirable" features for a test manual indicated in the Report of the 1952 APA (Cronbach) Committee on Test Standards.[3]

The manual is, in many ways, the best manual for a projective technique to date. There is much wisdom and many springboards for research ideas within it. It is well organized and clearly expressed. (Only in the first few chapters of the manual was I disturbed by vagueness and generalities where I sought specific information.) In many ways the manual measures up to the "Essential" standards proposed by the Cronbach Committee and in this way, too, sets a new standard for techniques of this sort.

One of the "Essential" standards indicated by the Cronbach Committee is that the professional qualifications required to administer and interpret the test should be indicated. The manual under discussion does not clearly indicate these, although the manual does use the words "examiner," "clinician" and "the clinical staff"; the matter is confused, however, by the printed notice that accompanied the review copy which stated that "teachers and counselors will find the SRA *Michigan Picture Test* valuable in the study of child behavior."

4. *What is the over-all evaluation of the Michigan Picture Test?* In spite of the critical and negative comments above, this reviewer feels that the *Michigan Picture Test* looks interesting, seems useful, deserves a trial, presents a manual which might well be emulated, and leaves one with admiration for the authors' labors.

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[3] APA Committee on Test Standards. Technical Recommendations for Psychological Tests and Diagnostic Techniques: Preliminary Proposal. *American Psychologist*, 1952, *7*, 461-475.

Beck, Samuel J. *The Six Schizophrenias: Reaction Patterns in Children and Adults.* New York: The American Orthopsychiatric Association, Inc. 1954. Pp. x + 238.

The study as reported here is a very stimulating and valuable one. As Dr. Beck points out, one important contribution is the inter-disciplinary setting of this difficult research with the resulting group formulation based on three different professional approaches. A second contribution is that this study demonstrates a method for investigating dynamic and clinical aspects of the schizophrenic process from a better rounded point of view. A third contribution is the communication to others of the detailed thinking of a group of clinically trained people engaged in the process of research. Fourth, but not necessarily least, are the findings themselves with the accompanying discussion.

The acknowledgement in the monograph states, "A coordinated inquiry into the problems of schizophrenia as carried on by the three scientific disciplines, namely psychology, social work, and psychiatry—are the subject matter of this monograph." Such a statement seems to promise a detailed orderly presentation of the research hypotheses, design, method and results. While the subject matter of the presentation is the research, it is presented from a subjective rather than objective point of view and includes only portions of the research. For example, the first chapter, written by Roy Grinker, is a combination of a bird's eye view of the complete monograph and some of his own speculations about schizophrenia. He also states what he believes the "dynamic psychiatrist" finds disappointing in the Rorschach and goes on to describe the way in which he wishes the interpretation of the Rorschach could be extended. While the wish is a pleasant one, the extent to which Dr. Grinker would wish to use the Rorschach for a complete evaluation of the individual is highly suggestive of a wish not to recognize the limitations of a single test.

The following chapter is called "The Initial Steps." Here the sampling of population is treated somewhat blithely with statements like, "This initial step (the sampling) and the results, have been reported in full" in another paper. In addition, after a brief report on the number of subjects, the generalization, "The sample is a fair representation of the 'average man' in a city like Chicago and *presumably* (italics the reviewer's) of the United States generally," is made without further support. This chapter is followed by one titled, "The Individual Schizophrenic." It is an edited verbatim tape-recording of a sample of the conferences which were part of the study and demonstrates the way in which the conference method was used and some of the many problems with which the group struggled in formulating "what is schizophrenia." The chapter illustrates the "diagnostic thinking and the general logic" involved. The next chapter, called "The Correlative Outline," is one of the distinctive contributions for those who use the Rorschach technique daily. This outline presents clinical formulations of schizophrenia as prepared by the participating psychiatrists correlated with specific illustrations of expected reactions to the Rorschach for each of the formulations. This outline is arranged in four categories; the defenses, the ego, status of emotional forces, and restitutional forces.

The statistical procedures applied were the Q-Technique, factor analysis and analysis of variance. These computations yielded six patterns for the schizophrenic sample. Dr. Beck points out that the number of schizophrenics used is small for each group but that the number of ratings of the Q-Technique serve to correct this factor somewhat. This seems a strange statement since the Q-Technique is still dependent upon the sample used and if this

sample is a skewed or biased one, the judgments will remain affected by such factors. The question of the adequacy of the sample of fifty adult schizophrenics and sixty child schizophrenics taken from one hospital is not satisfactorily explained away by the use of the Q-Technique.

The title of the next chapter is "The Six Schizophrenics" and is presented "in two sets of terms. One is the Rorschach test behavior. The other is a translation of the Rorschach findings into psychologic meanings." There are two organizational peculiarities. One is the presentation of the list of 120 items arranged in rank order for the first pattern found although the items retain the numbers originally assigned to them. This original list is not reproduced so that in examining the other patterns or in reading the test, if one wishes to refer to the item mentioned, it becomes a matter of searching the rank order list until one finds the pertinent number. A second peculiarity is that throughout the discussion of the clinical significance of the test findings use is made of a conceptual scheme represented by letters, but the conceptual scheme is not presented until the closing sections of the chapter. The remaining body of this chapter deals with the two sets of terms mentioned previously, that is, the fuller description, in Rorschach terms of a sample of the items and the fuller description, "as psychologic descriptions," of these same items. This section obviously represents much work and careful evaluation. It has the important quality of demonstrating how test behavior can be made meaningful in behavioral terms. Further, as Dr. Beck points out, "These descriptions should be helpful to any research attempt to repeat" this one. The presentation in such detail of the thinking and interpretative process in research is crucial for adequate communication and evaluation and deserves note. In addition, such elaboration has value for the person who wishes to obtain the benefit of the interpretative skills of an authoritative person in the field. The summary in this section reveals some new insights into the schizophrenic process. Dr. Beck is able to point out and discuss some of the shifting and some of the stabilized patterns based on the repeat Rorschachs which were available.

There is a very brief contribution by Dr. William Stephenson on the "Q-Technique and the Rorschach Test."

Factorial analysis of the environmental factors demonstrates validity for the belief that parental hostility is an important factor in the development of schizophrenia in the child. There is a detailed discussion of the analysis of the environmental factors and some samplings from the life history of the subjects. The final chapter, "Implications Concerning Schizophrenia," summarizes the study, discusses the implications of the findings, and considers the meaning of the data for a further evaluation of the dynamic implication of schizophrenia. One rather striking point which is made is the statement, "To characterize a person as belonging in one of the six reaction patterns is not to say that he is psychotic. The patients in our researches were clinically diagnosed as schizophrenic, but not as in psychosis." The surrounding discussion indicates that the patients were diagnosed schizophrenic when the psychiatrists, "had their presentiments. They saw the possible direction of the personality. But they were not yet ready to speak of them as living in that unsubstantial world designated by the term psychosis." This immediately raises the question whether the finding of six patterns could not be a function of the diagnostic and nosological approach used by this group of psychiatrists and the factor of limited value.

Although some of the limitations of this study have been pointed out, the study as a whole is a most desirable one both for its method and its con-

tent. Certainly both those working with schizophrenics and those working with the Rorschach will find much in it that is worthy of careful reading and consideration. In addition, those planning research which involves the cooperative efforts of different disciplines in psychiatric research will be able to profit from considering the procedures used in this study.

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Bellak, Leopold. *The Thematic Apperception Test and the Children's Apperception Test in Clinical Use.* New York: Grune and Stratton, 1954. pp. 282. $6.75.

A favorable, but not inaccurate, over-view of *The TAT and CAT in Clinical Use* may be obtained by citing excerpts from the publisher's brochure:

> ". . . This new book deals with the TAT primarily from a clinical viewpoint, as an economic diagnostic method in actual practice, in relation to and as part of psychotherapy. The book reviews the various methods of TAT administration and interpretation and it sets forth Dr. Bellak's own method. . . The stimulus value of each picture is discussed in detail, as are typical themes elicited from various diagnostic groups. Special emphasis is given the use of the TAT in psychotherapy, and a brief section on the foundations of projective testing in the terms of the new psychoanalytic ego psychology is included. There is an abundance of case records worked out in detail – over 100 pages are devoted to case analysis. . . The book also gives considerable space to the Children's Apperception Test. . . Both the CAT and the new CAT-supplement (CAT-S)—which supplies individual pictures for specific areas and needs such as pre- and postoperative conditions, school problems, arrival of a sibling, etc.—are tested in full detail, also with ample case material. Thus this volume is of particularly wide interest and application."

There is, however, much more to Dr. Bellak's book than is indicated in the quotation above, and it is the purpose of this review to convey some of the more elusive characteristics.

It is a refreshing and lively book which may irritate some of the more advanced TAT workers with its dogmatism and its superficiality, but which may stimulate and thrill some of the TAT beginners with its common-sense, and clinical feel, and practical approach. Its usefulness for the beginner, however, far outweighs its shortcomings.

The book is unusual, perhaps the more useful for being so. It is a *clinical* book—"meant primarily to be of practical use to the student and practitioner"—and is not intended, to quote Bellak, for the "methodologic bluenoses (who often mistake obsessive doubt for a scientific attitude and their intellectual sterility for caution and eclecticism) . . . " The practical aspect of the book, with its emphasis on interpretation and case illustrations is good enough, but that stuff about obsessive, sterile bluenoses, wow!

Some comments about Bellak's style: The book is informative, easy to read, often chatty, at times an amazingly personal document. More than any recent textbook, it reminds one of a stimulating conversation with a knowledgeable person. The book sounds as though it were dictated, or taken from transcriptions of lectures. There is much first person in the book; the Preface is entirely a short biography (of a rather remarkable man), and consistent with this friendly style there occurs in the first chapter a footnote which is without precedent for its candor and disarming charm: "I am aware of the fact that some formulations in this chapter are still rather loose. A more lengthy (sic) statement is being prepared."

It is obvious that this reviewer implies that length alone will not turn the trick. The task of synthesizing the concepts inherent in TAT use with those in personality is truly a Herculean task—and it is no disgrace to Bellak that his efforts to date have not completely succeeded.

The interested reader is referred to a previous review, one by Dr. Julian Rotter. This review (in the *Journal of Abnormal and Social Psychology,* 1951, *46,* 272-278) on Bellak's theoretical chapter, which appeared in different form in Abt and Bellak's *Projective Psychology,* expresses an opinion with which the present writer concurs: "For all its shortcomings, this attempt to clarify the assumptions of projective testing is a step in the right direction and is worth reading."

As for Bellak's system of thematic analysis, it appears to be a valuable and usable combination of the atomistic and the global elements in test protocol, and is certainly one of the possible systems to be recommended for mastery. The story-by-story analysis of three TAT protocols is presented in detail and constitutes a worthwhile contribution.

The section on diagnostic groups (Chapter V) is filled with disappointments and rewards. Some of the material is so brief as to be cryptic. As an example of this, the following is quoted in full:

> "Not infrequently one will notice that *obsessive-compulsives* give their attention to small details in the pictures, and they will often respond with more than one story to a picture. We may also find that the story-teller stays distant and expresses sarcastic attitudes towards the hero, remaining emotionally isolated himself. In *hysterics and hypomanics,* on the other hand, we find a great deal of affect and a lively identification with the hero. In *manifest homosexuals* I have noticed a tendency toward frequent manifest homosexual references and a recurrent shift of identification not only from males to females but also within one sex. The result is that these stories are rather difficult to score. *Manics* will often . . . "

Also, there is one paragraph in this section on diagnosis under the title "The TAT with Schizophrenics" which should not stand without comment:

> "Contrary to findings by Rapaport . . . it is my experience that schizophrenia cannot easily be diagnosed as such from the TAT. I am speaking here of the latent schizophrenics one sees as they come to private offices. Rapaport's signs probably hold true primarily for hospitalized schizophrenics where there is such manifest pathology that one would hardly need a TAT to make a diagnosis. However, in a considerable percentage even of latent schizophrenics one may find ample indications of the severe disturbance in the TAT stories. . . . One may, however, find these signs or any of the criteria mentioned above in the records of adolescents or artists who are not schizophrenic to the best of one's ability to determine."

No one doubts Bellak's statement about adolescents or artists, but he seems to have misunderstood the intent of Rapaport's extremely useful findings. The TAT can play a very useful role with a very disturbed subject even where the diagnostic label is painfully clear. It is generally agreed that diagnosis, in its broadest meaning, encompasses more than merely the assignment of a label; elucidating the psychodynamics and giving clues for therapeutic management are, respectively, part of diagnosis, and among its purposes. This aspect of the diagnostic task is a process to which Bellak himself devotes one of the most fascinating sections of his book.

The last 120 pages of the book constitute a manual for the CAT. It is a fair job as a manual. It is inferior, for example, to the manual for the recent Michigan Picture Test; it does not include as many of the "Essential" features – as outlined by the 1952 APA Report of the Committee on Test Standards–as one would hope for. On closer inspection, one finds that the section on the CAT is really not a manual at all, but a series of case illustrations. The section on "Norms" (pp. 233-236) for the CAT-S is inadequate; no norms for the CAT are given, and the frequencies of themes are based on forty children of someone's B.A. thesis. Bellak's own concluding line in this section of norms is (like Card No. 5 of his CAT-S) rather lame: "At any rate, even without norms, a clinician would have considered this story as indica-

tive of special problems of aggression and fear and compliance." The possibility of being called a "bluenose" notwithstanding, one must state that the section on the CAT—having, as it does, nothing on validity or reliability, and consisting of seven cases, four of them quite brief – is disappointing and inadequate. In 1950, Robert R. Holt, in reviewing the CAT (in the *Journal of Projective Techniques*, 1950, *14*, 200) said: "Taken as a whole, the test (and particularly the manual . . .) shows signs of being put out in a little too much of a hurry . . . " Somehow, five years later, the same indictment can still be made.

But all in all, Bellak has written one of the best books on the clinical application of the TAT for the beginner—it is more complete than Stein's, it is more practical than Tomkins', it is more understandable than Aron's, it is more elementary than Rapaport's, and it is more focussed on one method of analysis than Shneidman's.

On the other hand, it does not replace Stein's compact manual, Tomkins' logical tour de force, Aron's scholarly work, Rapaport's monumental study, or Shneidman's collection of sixteen different methods of thematic analysis.

In spite of all the negative comments one can make, it is no contradiction to state that the book is very worthwhile, if only to share the thoughts of an intuitive and enthusiastic clinician.

Thus, in summary, the book is interesting for the TAT professional, useful for the TAT journeyman, and important for the TAT novice.

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Meehl, Paul E. *Clinical versus statistical prediction. A theoretical analysis and a review of the evidence.* Minneapolis: University of Minnesota Press, 1954. Pp. x + 149.

Professor Meehl analyzes in this book two approaches to the prediction of human behavior. He indicates that he is considering predictions in clinical psychology, but the topic would seem to be equally important for any other area of professional psychology where predictions of the behavior of people are a part of the job function.

The first method by which such predictions can be made is the statistical or actuarial method. On the basis of test scores, life history data, quantified interview results, etc., the subject is assigned to a classification for which empirical probabilities of the occurance of certain specific behaviors have been established. The "best" prediction is the event with the highest probability of occurance. Included as part of the statistical method are such predictive tools as multiple regression equations, and discriminant functions, as well as actuarial tables per se.

An alternate procedure for predicting behavior is the clinical method. The predicting psychologist studies the data and on the basis of his analysis arrives at an hypothesis about the personality structure and dynamics of the subject. From this hypothesis and certain assumptions as to the course of external events, he makes his predictions.

In his presentation, the author considers in turn some of the adjunctive questions centering around the primary topic. He briefly describes, first, the rational nature of inferences from class membership and points out how this procedure does not necessarily involve losing sight of the subject as an individual. He continues his discussion with a consideration of the special knowledge of the effects of rare events that the psychologist brings to the predictive situation. Such events do not occur sufficiently often to permit the construction (practically, at least) of stable frequency tables for the prediction of future behavior. One must rely on the psychologist as

an organic repository of probability tables involving these unusual cases.

In the next three chapters Professor Meehl carefully examines one of the basic questions in the problem of clinical versus statistical prediction, i.e., does the clinician's predictive efforts involve anything more, from a logical standpoint, than the use of implicit actuarial tables. A very strong case can be made for the view that it does not, that clinical prediction is merely an inefficient equivalent of the functioning of a large capacity computer. In the light of our knowledge that machines are usually faster, more economical, and make fewer errors than do humans, the implications of this view for the scientific efforts of clinical psychologists are quite clear.

There can be little doubt that many of the clinician's predictions are of this type. The "I had a case . . . " approach whether verbalized or not, dominates our case conferences and very likely many of our more intensive analyses. Meehl argues, however, that when predictions are based upon an hypothesis about the personality pattern of the subject, the formulation of the hypothesis itself is a genuine creative act. It is not a formal consequence of the facts that support it. This is in contrast to the entries in an actuarial table which are a necessary consequence of the application of the principles of probability to the data. It is true that the clinician's experience and inductive reasoning are involved in the selection of the hypothesis but again Meehl argues that the hypothesis cannot be derived as a statistical consequence of the occurrance of specific events in the clinician's experiential history. It is his contention, therefore, that the clinician is not simply a substitute for the well oiled computer but a predicting mechanism which actually operates on different principles.

If this difference between the two methods of formulating predictions is accepted, the question immediately arises as to which produces the more accurate predictions. Professor Meehl presents and discusses twenty studies which have attempted to make this comparison or which contain information allowing it to be made. The score is by my count, eight for the actuarial method, one for the clinical method, and eleven ties.

Unfortunately, none of the studies constitutes a true test of the differences between the two procedures. The author points out that in almost all of them (17 by my count) the same data were not presented to clinician and "machine" alike and that in eight of the studies optimal weighting procedures for the statistical predictions were only roughly approximated. An even more serious objection that I would add is the lack of evidence that the human predictors had, in fact, formulated hypotheses about the personality patterns of the subjects involved. Lacking this evidence, a reasonable assumption is that the human predictors were attempting to defeat the "machines" at their own game, i.e. they were making their predictions on a subjective actuarial basis.

It *is* demonstrated, however, that the predictions of clinicians on whatever basis they are made, tend to be less accurate than those based on statistical combinations of the data. This is in itself a significant—and embarrassing—conclusion and a serious consideration of it should occasion a certain amount of reflective thought among clinical psychologists.

Professor Meehl concludes his book with two brief chapters on the quantification of clinical material and the unavoidability of statistics in the clinical area. The refinement of techniques and the validation of procedures is not only desirable for scientific reasons, it is a moral obligation.

In all, this book is a stimulating presentation of a topic often tactfully ignored in clinical circles. The author admits to his own ambivalence over whether the clinical method of pre-

diction possesses any advantage over the statistical but he strives valiantly to show that under certain circumstances it should. The degree of reassurance to the clinical reader will depend largely upon the firmness of his previously held convictions. My impression was that the author was whistling somewhat over loudly as he hurried by a statistical graveyard.

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Rubinstein, Eli A., and Lorr, Maurice (Eds.). *A Survey of Clinical Practice in Psychology.* New York: International Universities Press, 1954, pp. 363.

To one who has lived through the years when the term "clinical psychologist" was barely known, this is truly an astounding book. While the psychologists themselves have not yet arrived at an answer to the question which plagued the Boulder Conference, "What is a clinical psychologist?," here is a book of 363 pages which describes the present rich diversity of activities in the field of clinical practice. As Shaffer comments in the Foreword, clinical psychologists now are "busy and versatile people."

The book is divided into three parts, Part I dealing with the history of *Centers in which Clinical Psychology has been of Long-Standing Service*, namely, the university psychological clinic, the child guidance clinic, the mental hospital, and the institution for the mentally defective; Part II with *Government Agencies with Large-Scale Programs of Clinical Psychology*, the Veterans Administration, Army, Navy, Air Force, and U. S. Public Health Service; and Part III with *Representative Agencies and Settings more Recently Including Clinical Psychologists among their Professional staff.* In the last section the chapters fall under three rubrics according to their concern primarily with mental health problems, with antisocial behavior, or with educative, remedial, and rehabilitative problems. The approach in each chapter is both historical and descriptive, with usually a brief look toward the future at the end. In a volume which gives such meticulous and systematic attention to historical arrangement, it comes as a surprise to find the chapter on clinical psychology in the Veterans Administration, strictly current, preceding those on the Army and Navy which take us back to World War I. Perhaps it is because the Veterans Administration story, like that of the U. S. Public Health Service, is such an imaginative and extraordinary one that the editors could not resist this take-off in the picture of clinical psychology in government agencies.

Throughout the various accounts a general developmental pattern emerges. In the activities of clinical psychologists there has been a gradual progression from intelligence testing, to differential diagnosis, to personality evaluation, to psychotherapy or other forms of "treatment," to public relations or other efforts at communication and interprofessional understanding. Central always is the function of research. Whatever the field of specialization, this is the prevailing pattern.

Specific problems stand out in connection with the different types of center. In the hospital setting, in spite of its longer history, there is perhaps the greatest confusion about the role of the psychologist, the greatest tug between the demands for research and for clinical services. In private practice probably the complexity of problems is greatest. How to build up a practice, how to get medical cooperation, how to arrange for malpractice insurance, how to get a chance to do research—all of these problems and more are troublesome in the private practice centers, especially important because of the cur-

rent tendency of clinical psychology to expand in this direction. For the school psychologists low salaries present a hurdle, tending to keep away from their ranks the "research-minded" psychologist who is so badly needed there. Bad growing pains are apparent in the development of old age counselling centers, alcoholic centers, municipal court clinics, and in rehabilitation centers for sensory disorders. It is interesting that the field of sensation and perception in which experimental psychology made its earliest advances has been one in which the clinical psychologist has been very slow to work constructively.

In this survey we see new rapprochements building up between clinical psychology and other specialties and disciplines. In the functioning of student counselling bureaus is the rapprochement between clinical and counselling psychology. In the reading and speech clinics, as well as in the school clinics, with education. Particularly interesting is the growing relationship with industrial psychology over the last five or ten years. Beginning by providing services as personnel consultant or as mental hygiene advisor to employees who were emotionally disturbed or mentally ill, clinical applications in industry recently have been quite different. The present tendency is to apply to relationships within a company, including top management, some of the principles of group dynamics which will improve the total functioning.

Running throughout all the activities described in this survey is the recurrent theme of research. In every field of application dependence on future discoveries through research is central. The unity of clinical psychology with all psychology has provided much of its richness and the importance of the Ph.D. training for the future is apparent. There is no minimizing of the difficulties in carrying out the needed investigations in each field. But acknowledgment of the need and the desire to meet it are voiced in every chapter.

RUTH S. TOLMAN
Los Angeles Mental Hygiene Clinic
Veterans Administration

Sarason, S. B. *The Clinical Interaction: with special reference to the Rorschach.* New York: Harper Brothers, 1954. Pp. X + 425.

The author indicates that his book is based on a course which he has been teaching at Yale University for some years. The presentation is divided into three major parts, Situational Variables, the Rorschach, and Individual Interpretation.

Part one, Situational Variables, deals with "the major variables operative in an interpersonal interaction." In this discussion the author examines carefully many of the interactions, especially in test situations, of examiner and subject and points out how frequently the accepted standardized situation contains important overlooked variables. There is an analysis of how the physical environment, instructions, and examiner can unwittingly function as unnoted variables unless detailed consideration is given to their possible effects. He documents this presentation with a number of representative research studies.

The style of writing is generally a very effective one although at times the degree of detail becomes more pedantic than seems necessary. Nevertheless, on the whole, the material is valuable and well presented especially for those new to the concept of examiner-subject interaction.

Part II, the Rorschach, presents the basic aspects of scoring and interpretation essentially as organized by Klopfer. For each of the categories, he presents the underlying hypotheses and presents the most pertinent research with a critique. For most classrooms in which the elementary aspects of the Rorschach is taught, this portion of the book lacks seriously the

detail and scope necessary for a basic text. There is inadequate presentation of explanations and samples in scoring and what is there is so imbedded in the research discussion as to confuse the beginner. On the other hand, for the reader who is already familiar with the technique, interspersing the instructional material in the presentation of the research interrupts the flow and becomes a distraction. This section could have gained considerably by sub-dividing it into a section on instructional material with more detail and a section on the research organized around the hypotheses. Despite these criticisms, this section is a valuable supplement to the more usual texts in the field which, on the whole, tend to ignore the research findings.

Part III, Individual Interpretation, is best discussed in two sections. The first section uses case history and therapeutic material to point out some major formulation of psychodynamics. This is the least useful and meaningful portion of the book. The second section presents the author's analysis of six protocols. These are very useful, yet disappointing. After the lengthy evaluation of the research dealing with the formal characteristics of cards, the author's interpretation fails to use these and leans heavily on content interpretation so that although the interpretations are instructive and point up somewhat the interaction element, they essentially ignore a major portion of the book rather than illustrating it.

As a total, this book is probably the most stimulating of the recent books dealing with the Rorschach. It certainly is essential reading for any serious course on the Rorschach and certainly will also be useful to any psychologist working with the Rorschach who wishes to obtain a global picture of pertinent research findings.

MORTIMER M. MEYER
Veterans Administration
Regional Office
Los Angeles

Ulett, George. *Rorschach Introductory Manual:* A Primer for the Clinical Psychiatric Worker; With Interpretative Diagram to Permit Clinical Use While Learning the Ink-blot Technique; Beverly Hills: Western Psychological Services, 1955; Price: $3.50.

This short (49 page) booklet is designed by the author as a manual for psychiatrists. He deplores the fact that many psychiatrists must "depend upon psychologists for the administration and interpretation of the Rorschach test." He suggests that the test be administered by the physician, himself, for the purpose of rapid evaluation so as to "increase rapport, give clues to diagnosis, and aid in the therapeutic approach." It is considered unnecessary to administer and score the test in the "usual lengthy manner," as this would imply some knowledge of psychological testing. The author feels that the method here presented permits immediate interpretation and diagnosis and, thereby, "allows clinical application during the otherwise wasted period of learning the technique." Perhaps the reader will have no difficulty in understanding why this reviewer found the above statements somewhat at variance with his own attitudes and those prevailing in the field. The above excuses are apparently used by the author to justify his presenting, in extremely sketchy form, a few generalizations about the Rorschach test which can be derived from any basic text already published in the field.

In the body of the manual, the author describes the Rorschach as a "remarkable means" of getting information about every facet of the personality, thereby being somewhat more optimistic than this reviewer. He presents a number of tables and graphs by which test scores can be evaluated in terms of the degree to which they deviate from the norms presented. Even though some lip service is given to the configurational in-

terpretation of the data, there is no description of the way in which configurations will modify the evaluation of single scoring categories. The author's schema is based upon a tripartite division of personality traits into affective, intellective, and creative imaginative capacities. Other characteristics are fitted in "where convenient."

The author briefly recapitulates some of the usual instructions about administration and scoring of the test. His scoring system is a mixtrue of Beck and Klopfer, which is rather confusing, especially since some of the symbols are employed differently by him. For example, he defines Z as a "tendency towards W." Everything is made very simple for the reader. For example, a strict precedence of determinants is proposed and the clinician is instructed to use the inquiry "where the factors influencing the subject's responses are not obvious." Otherwise, scoring is done without the aid of this procedure. The results of this simplification are made clear by reference to the sample case included in which the response "some cotton" is scored c. There is no evidence that he is or is not using this determinant, since no inquiry was conducted.

In the chapter on interpretation, the author states that the Rorschach method "does not presuppose any special conception of personality." This statement seems doubtful, but will not be discussed in detail here. Even though the author's statements about interpretation are gross and oversimplified, none of them are too far out of line with the prevailing thinking in the field. However, as they are presented here, they are stated dogmatically and univocally, no attempt being made to make them either logical or bring in any sort of normative or empirical evidence. Diagnostic indicators are also presented in tabular form and it is difficult to know how to deal with the overlap of many signs or what to do with the protocols not falling into the syndromes presented.

In conclusion it is the opinion of this reviewer that no special basic manual for the Rorschach test is needed at this time for psychiatrists or anyone else. The author, himself, admits that there is nothing unusual or original in his presentation and that it is over-simplified. Why he should go ahead and publish a manual under these conditions is difficult to understand. Whether the Rorschach test will be more useful when administered directly by the physician and without the help of a clinical psychologist, seems highly doubtful to the undersigned.

WALTER G. KLOPFER, Ph.D.
Chief Clinical Psychologist
Norfolk State Hospital

ANNOUNCEMENTS

MINUTES OF THE ANNUAL MEETING OF THE SOCIETY FOR PROJECTIVE TECHNIQUES

September 3, 1954

The Society for Projective Techniques held its annual meeting at the Hotel New Yorker on September 3, 1954. President Samuel Kutash, in the chair, sketched briefly the activities of the Society during the year 1953-54. The change in by-laws which had been ratified by a mail vote will, he pointed out, mean a major change in society organization. It will take us from our early stage of largely eastern leadership to a more truly national representation and participation in the executive management of the Society. He recalled that in its beginning the newly created society had needed a closely knit, frequently meeting Executive Committee in order to chart direction and achieve momentum as a professional group. The time is now ripe for the shift to the more mature type of organization in which committees are freer and able to proceed with more autonomy. The vote on the proposed changes in by-laws were as follows:

Proposition I	
Yes	276
No	9
Unchecked	1
Total	286
Proposition II	
Yes	225
No	61
Total	286

The change in society structure is the outgrowth of a Policy and Planning Conference called by John Bell, their president, in the spring of 1953, when the total Executive Committee, plus a few other people, assembled in New York for an extended discussion of the Society's present status and desirable future development.

President Kutash reported that the questionnaire asking members to check their preferences on committee assignments had brought in many replies which would be turned over to the new president.

Theodora Abel moved that the minutes of the last meeting be accepted as printed. Seconded by Louise Gaudet. Motion carried.

Mortimer Meyer, Executive Editor of the Journal and Chairman of the Editorial Committee told the members that the backlog of manuscripts and consequent publication lag continues to present a problem. This is true despite the fact that the Editors select very carefully. During the past year 94 manuscripts were received. Forty-five or 48% were rejected. Forty-nine or 52% were accepted. Of the 94, thirty-one or 33% were returned for revision of which eighteen were re-submitted and accepted. Recently, in order to gain space, the TAT Newsletter has been discontinued, since the Editorial Committee felt it had outlived its day. Increase in costs of printing is a serious problem yet the Executive Committee has wanted, as has the Editorial Committee, to avoid cutting the size of the Journal.

The format has been changed several times during the life of the Journal, each time in an effort to gain in readability. Meyer invited suggestions from members as to how the publication may be improved. He commended and thanked all the Editors for their devoted cooperation in the production of the Journal. Kutash reported that the Executive Committee had at its meeting earlier in the day passed a resolution of appreciation for the splendid work of the Editor and Executive Editor.

Louise Gaudet, Chairman of the

Finance Committee, reported that the Society had never until this year had a financial problem. Now we do. The Finance Committee has kept closely in touch with the Treasurer and in budget planning for the coming year has taken the necessities of the situation into consideration. The overall figure for 1954-55 is $12,430, which at the time of planning meant a predicted deficit of $1,280. This figure now has risen to $1,550. Gaudet said that the Finance Committee had recommended an increase in membership dues and subscription rates, but the Executive Committee rejected this on the ground that it might lose the Society more than it would bring in. As an economy measure the Society has purchased a mimeographing machine so that we can do our own duplicating. Cheaper methods of printing the Journal have been investigated but no suitable solution has been reached. Of five printers very recently asked to submit detailed estimates only one was interested. This house will undertake the Journal at $10.09 per page which compares favorably with the $11.35 we now pay. No decision had been made on this offer. An inquiry into the possible return from carrying advertising in the Journal has revealed that we would have to make an all-out effort to sell a large number of ads if much return were to come from this source. Holzberg asked Gaudet if any attempt has been made to push the sale of back volumes to libraries. Klopfer, answering, said that when the old Rorschach Research Exchange reached a ten year mark a concerted effort to push its sale had been made and had met with marked success. A plan is now in the making to institute a similar procedure when we reach the twenty year mark. At that time a ten year index could be issued and a vigorous selling effort made. Klopfer further said that the present financial problem is, in no small measure, the result of our having sold out most of the early issues of the Rorschach Research Exchange. The material has now been superceded by newer research, so that it seems undesirable to undertake reprinting. At the same time our accumulating stock of back volumes has not yet reached such a level as to replace the old Exchange volumes as a source of income.

The election of more Fellows was suggested as a desirable step.

Gaudet continued that a confusion in records during the spring led to a recommendation by the treasurer that an auditor be employed. However, David Vorhaus volunteered to see if he could locate the discrepancy in the bookkeeping, which he did. One other undertaking of the Finance Committee has been a study of a suitable depository of Society funds. This resulted in a shift from a bank in Jamaica to the Manhattan Bank, which has a branch accessible to our corresponding secretary. Gaudet expressed appreciation for the work of her committee members.

	Fellow	Asso.	Stu. Affil.	Affil.
Applications pending from previous year	2	10	2	1
Applications received during year	14	66	11	7
Total to be accounted	16	76	13	8
Applications disposed of during year:				
Accepted	14	57	10	4
Deferred	....	1	....	....
Inactivated	1	4	....	....
Rejected	....	5	1	2
Applications pending at end of year	1	9	2	2

Esther K. Rosen, Chairman of the Membership Committee reported the following volume of work by the committee.

Thus, from the total of 113 applications under consideration during

the year, 71 new members were elected. (The 14 new Fellows were already Associate members.)

Dr. Rosen, continuing her report, said that our by-laws provide that "Persons of outstanding distinction or who have done much in other fields to promote the objects of the Society may be elected honorary members upon unanimous proposal by the Membership Committee and unanimous vote of members at the annual meeting of the Society." The interpretation of this by-law by the Membership and Executive Committees is that honorary membership should be regarded as a way of recognizing distinguished service to the field of projective techniques and to the Society by persons who do not satisfy our face requirements for the regular classes of membership.

Acting under this authority the Membership Committee made the following recommendation to the Society: "The Membership Committee takes great pleasure in presenting for your consideration for honorary membership the following three persons:

"Lawrence K. Frank. He is regarded by many as the father of projective techniques. His early papers and his monograph dealing with the theoretical aspects gave a great impetus to work in this area. He has been a valued member of the Advisory Committee.

"Dr. Olga Rorschach. In honoring her we are also paying honor to her husband, Dr. Hermann Rorschach, as well as cementing international ties.

"David Vorhaus. He is a key person in the Society. His contributions as legal advisor, member of the Advisory Committee, and countless other ways set him apart as one of our distinguished colleagues."

Rosen added that the Membership Committee urges the members to suggest to qualified individuals that they apply for membership, and especially that those in touch with graduate students inform them of the Student Affiliate Class of membership.

A motion to accept this recommendation was unanimously carried. Burchard moved that the Membership Committee report be accepted with thanks. Carried.

Harry McNeill, Chairman, summed up the work of the Committee on Regional Divisions: "By way of promoting new membership in the Society in general the Committee on Regional Divisions has attempted to organize each year, at the annual meetings of EPA, MPA, RMPA and WPA, programs and activities which point out the advantages of belonging to the Society. Symposia and scientific papers have been arranged for these regional meetings which, in many instances, have been the highlight of the entire regional meeting. In addition, luncheons and social hours have been arranged which enabled members of the Society to assemble and exchange views. A bulletin board for Society affairs has been set up in many instances, and on it the requirements for membership have been posted, together with application blanks or slips for requesting membership blanks.

"Members of the Committee have studied the membership lists of other organizations of psychologists in order to discover new prospective members of the Society. Herbert Dörken, Jr., the Regional Representative for Canada, has been especially active in approaching Canadian psychologists eligible for membership and a good number have responded to his invitations.

"A similar plan of operation is in prospect for the members of the Division of Clinical Psychology of APA, many of whose members are eligible for membership in the Society.

"Attempts have been made to maintain contact with the activities of local groups; however, it has been difficult to obtain replies to our requests for information. We have nonetheless encouraged local groups to send no-

tices of their activities directly to Mortimer Meyer for publication in the Journal of Projective Techniques."

McNeill continued with a report from the Ad Hoc Committee to "consider Recent Articles on Projective Techniques in *Colliers Magazine*." This committee carried on correspondence with the editors of Colliers and met several times in New York in their deliberations concerning two articles on projective techniques which psychologists generally found offensive. He called attention to the final report of the Ad Hoc Committee published in the June 1954 Journal of Projective Techniques Vol. 18, No. 2, pp. 269-273.

"The report," he said, "reproduces a letter of March 4, 1954, from the Editor of Collier's, in which he gratefully accepts the strictures of the Society and makes assurances regarding the future." McNeill added that it was a source of great satisfaction to the members of the Committee to have this welcome outcome to their labors. A sequel, he said, has been the appointment of the same Committee members to a new committee, namely, the committee on Policy and Public Relations, with a mandate to consider policies and make recommendations regarding the popularization of knowledge respecting projective techniques.

Joseph Stone, Chairman, reported for the Ethics Committee. The work of this committee has proceeded along three avenues: (1) continued confidential investigation of complaints about members. There have, fortunately, been few. (2) Pressure for freer communication among the psychological societies concerning ethical matters, and (3) an effort to bring about the adoption of a code of ethics. He said that our own Society had been working on the formulation of a code when APA published one. The committee now felt that we would do well to adopt the APA code and that during the next year the committee should strive to make this code more specific to projective techniques. He brought to the Society the recommendation appearing below. The Ethics Committee had earlier in the day submitted it to the Executive Committee meeting where it was voted that the recommendation be accepted for presentation at the annual meeting.

Resolved: That the Society for Projective Techniques adopt as its own the code of ethics entitled "Ethical Standards of Psychologists," which is the official code of ethics of the American Psychological Association, substituting the name of this Society for that of the American Psychological Association whenever it appears.

The Committee also requests that the membership be notified of the intent of the Ethics Committee to review the need for modification of the code to fit the special purposes of the Society.

The Committee on Professional Ethics requests that the Executive Committee of the Society for Projective Techniques communicate with the Board of Directors of the American Psychological Association and request them to authorize the interchange among properly qualified Ethics Committees of information regarding the ethical behavior of psychologists—this interchange to be carried on with the necessary safeguards.

Discussion of the resolution centered around (1) methods of informing newly elected members of their obligations under the new code, and (2) ways in which the applications of persons unqualified for membership can be held up before action by the membership committee. It was suggested that the publication of a list of applicants some time prior to their election would give individuals working in the applicant's locale an opportunity to communicate with the membership committee if they had misgivings about an applicant's desirability. Holzberg moved that the matter be referred for joint consideration

by the Ethics and Membership Committees and that these Committees bring a recommendation to the Society. Motion carried.

The Ethics Committee report was accepted.

Holzberg reported for the Program Committee. He expressed the sincere appreciation of the Committee to Dr. Cofer and Dr. Hildreth for their cooperation in formulating the Society's 1954 program and to Meyer and Stone, for their assistance to him as Chairman. He raised for discussion the question of how our own sessions, not sponsored jointly with Division XII, should be scheduled. It had been felt in the Committee that to hold meetings which conflicted with those held by Division XII was not desirable. Discussion brought several suggestions from the floor. These were: (1) that we *not* pull out of joint sessions with Division XII, (2) that we strive for a compactly scheduled program which could be kept fairly short in an effort to deal with conflicts with other section meetings, (3) that we might meet prior to the general APA convention by one day, (4) that we seek to have a member of our own program committee appointed to the program committee of Division XII.

Pauline Vorhaus, reporting on the Florentine Hackbush Memorial recalled that Florentine Hackbush died two years ago and that the Executive Committee believed the Society would wish to honor her memory in some fitting way. After study, the Florentine Hackbush Memorial Committee appointed by John Bell, then president, has recommended and the Executive Committee has accepted the following: That the Society subscribe to the Journal for twenty-five foreign universities which are unable to pay for the Journal, the subscriptions to run for ten years.

Bruno Klopfer reported for the International Committee in the absence of Marguerite Hertz, Chairman. He was convinced that there would be no difficulty in making up a suitable list of recipients for the Florentine Hackbush Memorial as the language barrier scarcely exists today and the psychologists in the foreign universities would be grateful for an opportunity to read our Journal. He thought it might be well to limit the period to five years, however, and suggested the possibility of enlisting foundation support to match the funds supplied by the Society for this purpose. He further recommended that the last five volumes of the Rorschach Research Exchange be presented to Madame Rorschach.

He reported that the work of the International Society has had organizational difficulties. Now the Swiss realize they must try simply to provide international communication, but such an alteration in goal would require a revision of the by-laws of the organization proposed by the Swiss. During Klopfer's recent sojourn in Europe he was given a warm welcome by the Swiss Rorschach Commission (appointed by the Swiss Psychological Association). He met with and spoke to the Commission. *Rorschachiana* he reported has been discontinued and replaced by another journal which is predominantly German. In addition an eight-page newsletter, called *Rorschiana* is now published in four languages. Klopfer warmly commended the work of Marguerite Hertz as Chairman of the International Committee. Report accepted.

Gordon Derner, treasurer, made the accompanying report for the period of January 1, 1954 to September 1, 1954.

He added that some incurred bills have not yet been received. Motion carried that the report be accepted.

At Kutash's request David Vorhaus explained briefly the nature of the organizational structure of the Society under the new by-laws. Vorhaus stressed the fact that the new plan providing less frequent meetings of the Executive group will make possible the bringing together of a leadership group from many sections of the country. This looks toward a

Balance on January 1, 1954		$ 4,476.88
Receipts through August 31, 1954		10,556.27
Total cash to be accounted for		$15,032.95
Disbursements including bank charges through August 31, 1954	$8,194.90	
Add bills to be paid September 1, 1954	2,280.63	10,475.53
Balance August 31, 1954		$ 4,557.42
Deduct advance payments due in 1955		$ 102.60
New balance August 31, 1954		$ 4,454.82
Bank balance:		
Jamaica Bank, August 31, 1954		$ 1,932.72
Bank of Manhattan, August 31, 1954		4,905.33
On deposit August 31, 1954		$ 6,838.05
Bills to be paid September 1, 1954		2,280.63
Cash on deposit after September 1, 1954		$ 4,557.42

society more truly national in character.

The Nominating Committee's report, as follows, was presented by John Bell.

(1) 664 ballots were mailed out, and 313 received in return, representing 47% of the membership.

(2) The Elections were reported in terms of the positions in the reorganized Board of Trustees. The offices and the names of those elected to them were as follows:

President: Samuel J. Beck
Pres. Elect: Jules D. Holzberg
Secretary: Rachel D. Cox
Representatives at Large
Eastern: Roy Schafer
Western: William F. Henry
Editor: Bruno Klopfer

The Committee extended its congratulations to the officers and wished them success and pleasure in their work for the Society. The Committees also thanked all who were willing to allow their names to stand in nomination. Their cooperation made it possible to carry out the democratic principle of giving choices for election to the membership.

(3) Bell continued that since it is now possible to make nominations on a national basis, and it is important for us to keep our Board of Trustees truly representative of the whole membership of the Society, the procedures for nomination need to be studied. During next year the Society ought to examine its present method of nomination and such alternate systems as might be practicable and desirable.

The Committee on Nominations recommended:

That the President be instructed to establish an ad hoc committee to study methods of nomination and to recommend to the Board of Trustees the nomination procedure that would appear to be the most appropriate for the Society.

Report accepted. Kutash thanked the members of the Nominating Committee.

Florence Diamond moved a vote of thanks to the outgoing officers. Motion carried. Meeting adjourned.

Respectfully submitted,
RACHEL D. COX, Ph.D.
Secretary

A detailed mimeographed report of Society disbursements from December 31, 1952 through December 31, 1953 was made available to those present.

THE SOCIETY FOR PROJECTIVE TECHNIQUES AND THE RORSCHACH INSTITUTE, INC.

ABSTRACT OF THE CERTIFICATE OF INCORPORATION

(Filed with the Secretary of State of New Jersey and the Clerk of Essex County)

First: The name of the Corporation shall be The Society for Projective

Techniques and the Rorschach Institute, Incorporated.

Second: The purposes for which this Corporation is formed are to further the development of the Rorschach and other projective methods of personality diagnosis,

(a) By various authorized publications.

(b) By organizing coordinated research projects.

(c) By encouraging and assisting in providing adequate training facilities for professional groups interested in the use of these methods and setting up definite training standards.

(d) By promoting generally in such other ways as may be appropriate the study, research, development and application of projective methods of personality diagnosis.

Third: The location of the principal office of this Corporation is at 790 Broad Street, in the city of Newark, county of Essex and the name of the agent therein and in charge thereof, upon whom process against the Corporation may be served, is David H. Youneff, Esq.

Fourth: The number of trustees shall be three (3) or more.

Fifth: The Corporation may have an office outside the State of New Jersey for the convenience of its officers and trustees, and where meetings of the trustees may be held.

BY-LAWS

ARTICLE I. *Membership*

SECTION 1. Members of the Society for Projective Techniques and the Rorschach Institute, Inc., shall be duly elected psychologists, psychiatrists, and other professional persons whose work and interests include the study of personality or the understanding and differentiation of its disorders, whose activities promise an enhancement of the scientific objectives of the Society, and whose qualifications meet those set by the Society.

SECTION 2. There shall be five classes of membership to be known as (a) Associates, (b) Fellows, (c) Affiliates, (d) Student Affiliates, and (e) Honorary Members.

ARTICLE II. *Qualifications for the Several Classes of Membership*

SECTION 1. *Associates.*

a. Persons whose work and interests lie primarily in the study or treatment of human behavior and its disorders, and who are recognized by virtue of professional training, experience, and membership in professional associations, as qualified psychologists, psychiatrists, or research workers in these fields, may be elected as Associates provided their qualifications conform to the following standards:

(1) The Master's degree in psychology or its equivalent as specified below, or the Doctor's degree in psychology, or the M.D. degree. By "its equivalent" is meant that the applicant has completed what amounts to one full year's graduate study and has entered upon and is pursuing what may be considered as his second year of graduate study in psychology, or two full years of graduate study in psychology.

(2) At least a full academic year's study in a full academic University course, or the equivalent of such a course in one or another of the projective methods under a recognized instructor in such method and in addition evidence of such adequate practice of the method under proper supervision as to evidence conscientious and substantial interest therein. By "recognized instructor" is meant one who is either a Fellow of the Society or else one whose competence in the opinion of the Membership Committee would meet the requirements for Fellowship.

(3) At least four thousand hours of supervised clinical work in a service setting or of supervised research work in psychology or psychiatry acceptable to the Membership Committee. The commencement of this work to have followed the completion of one full year of graduate work in psychology.

b. Each applicant for Associate shall

be endorsed as to the stated training and practice, and as to personal soundness and integrity by at least two sponsors one of whom shall be at least an Associate and one of whom shall be a Fellow.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required for election.

d. Associate status in itself does not imply any specific degree of proficiency in any of the projective methods.

SECTION 2. *Fellows.*

a. Fellows must be competent to administer one or more of the methods alone or in combination in such a manner as reliably to interpret the results, engage in research and teach the method or methods in which they possess such proficiency. They must also conform to the following standards:

(1) A Doctor's degree in clinical psychology, an M.D., or a Doctor's degree in some closely related field.

(2) At least five years of professional experience of such a nature and quality as to demonstrate the above stated degree of competence.

b. Associates of at least one year's standing may apply for Fellowship. If their position, attainments and the quality of their work are approved by the Membership Committee, this Committee may recommend them to the Board of Trustees for certification as follows:

c. Each applicant for Fellow shall be endorsed as to competence, personal soundness and integrity by at least two Fellows of the Society.

d. Where a person possesses all the qualifications for Fellow except that he has not been an Associate for at least one year and his professional standing and attainments are such as to make it appropriate to waive this requirement he may be elected to Fellow by the Board of Trustees on the recommendation of the Membership Committee.

e. For certification to fellowship the affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees, or two-thirds of all the members of the entire executive committee, shall be required. Such a vote may be cast by mail.

f. An appropriate certificate may be issued to any fellow attesting his competency as stated in subdivision a hereof.

SECTION 3. *Affiliates.*

a. Persons who are members of professions other than clinical psychology and who have a sincere and legitimate interest in projective techniques may be elected as Affiliates provided their qualifications conform to the following standards:

(1) A Baccalaureate degree.

(2) Two years of experience in the particular professional field of the applicant.

b. Each applicant for affiliate shall be endorsed as to professional status, as to his interest in projective techniques, and as to personal soundness and integrity by at least two sponsors of whom one shall be at least an Associate and one a representative member of his own profession.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required for election.

SECTION 4. *Student Affiliates.*

a. Persons who are graduate students in clinical psychology may be elected as Student Affiliates provided their qualifications conform to the following standards:

(1) The completion of one full year of graduate study in clinical psychology.

(2) At least a full academic year of study in a full academic University course in one or another of the projective methods.

b. Each applicant for Student Affiliate shall be endorsed as to his training and as to personal soundness and integrity by at least two sponsors who shall be at least Associates of the Society.

c. Names of applicants approved by the Membership Committee shall be forwarded to the Board of Trustees for election. The affirmative vote of two-thirds of the members present at a regularly convened meeting of the Board of Trustees shall be required for election.

SECTION 5. *Honorary Members.*

a. Persons of outstanding distinction or who have done much in their fields to promote the objects of the Society may be elected upon unanimous proposal by the Membership Committee and unanimous vote of members at the annual meeting of the Society. Names proposed for honorary membership shall be sent with the notice of the annual meeting to all members of the Society. Votes mailed by members not present at the annual meeting shall be counted if received by that time.

SECTION 6. Any person who, for any reason has ceased to be a member of any status may, on written application therefor, be reinstated upon such terms and conditions, if any, as the Membership Committee may recommend and the Board of Trustees at its discretion approve.

SECTION 7. Each member, by virtue of having made application for membership, shall upon election, be deemed without further act on his part, to have subscribed to the Constitution and By-Laws, and shall meet all obligations of the Constitution and By-Laws as they may from time to time be amended during the period of his membership.

SECTION 8. A member may be disciplined for professional misconduct or for conduct injurious or destructive to the Society, its objects or reputation. Charges of misconduct or injurious conduct shall not be entertained against a member unless the precise nature of the charges be submitted in writing subscribed by a member. Such charges shall be referred to the Committee on Professional Ethics, which shall determine whether or not the charges have been sustained and if sustained shall make recommendation as to the discipline to be administered, which may consist of expulsion, suspension, censure, admonition or other action. Such determination, however, shall not become effective until approved by the Executive Committee, which shall also determine the discipline, if any, to be administered.

The Committee on Professional Ethics shall proceed in accordance with such code or rules of procedure as from time to time may be adopted by the Executive Committee, but such rules shall in any case provide for reasonable notice to the member of the charges, reasonable notice of hearing, and an opportunity to be heard.

ARTICLE III. *Officers*

SECTION 1. The officers shall consist of a President, President Elect, Editor of the Journal, Executive Editor of the Journal, Secretary and Treasurer. They shall assume office immediately after the annual meeting following their election and shall serve until the next annual meeting of the members, in the case of the President and the President Elect; until the second annual meeting of the members following their election; in the case of the Secretary and Treasurer, the Secretary to be elected in even-numbered and the Treasurer in odd-numbered calendar years; and until the third annual meeting of the members following their election, in the cases of the Editor and Executive Editor of the Journal; and in the case of all officers until the election of their successors.

SECTION 2. The officers specified in

Section 1 hereof shall be elected by mail ballot in advance of the annual meeting of the members at which the respective terms of office to be filled expire, as stated in Section 1, except that President Elect shall automatically become President on the expiration of his term as President Elect.

SECTION 3. Vacancies occuring before the expiration of the term of any of the officers specified in Section 1 hereof, shall be filled for the remainder of the term by the Board of Trustees.

SECTION 4. The officers shall have the powers and perform the duties customarily belonging to their respective offices.

a. Between meetings of the Board of Trustees, the President shall direct the business of the Society. He shall be an ex-officio member of all committees and chairman of the Board of Trustees. He shall preside at all sessions of the annual meeting or appoint a substitute. He shall deliver a Presidential address. He shall appoint the chairmen and members of all committees which are to be appointed following his ascension to office, or because of the occurrence of vacancies or because of the establishment of other committees as provided for herein except that the Advisory Committee and its Chairman shall be appointed by the Board of Trustees.

b. The Editor of the Journal shall act in an advisory capacity to the Executive Editor and to the Editorial Committee, of which he shall be a member.

c. The Executive Editor of the Journal of the Society shall in all other respects be the chief executive officer of the Journal, shall be Chairman of the Editorial Committee and shall be responsible to the Board of Trustees for the publication of the Journal. He shall also be an ex-officio member of the Finance Committee.

d. The President Elect shall, in the absence of the President, perform the functions of the President.

e. The Secretary shall keep records of all business sessions and make reports thereon. He shall conduct such correspondence and perform such other duties as are customary and as the objects of the Society may require.

f. The Treasurer shall receive all sums of money due to the Society and shall disburse such sums as are necessary to meet the lawful indebtedness incurred and authorized by the Society by its vote or by the Board of Trustees. He shall have the power to invest and re-invest in the name of the Society such funds as are not expended. He shall keep and render to the Society accurate account of all sums received and disbursed and of all sums and funds which are not expended.

SECTION 5. In advance of each annual meeting, the Nominating Committee shall cause to be mailed to the members entitled to vote, its nominations for Officers and Representatives at Large to be elected, together with an appropriate election ballot. Elections shall be by a majority vote of those whose ballots are received within thirty days from the date of mailing.

ARTICLE IV. *The Board of Trustees*

SECTION 1.

a. The Board of Trustees shall consist of the elective officers as stated in Article III, Section 1, and three others who shall be the last past President and two Representatives at Large, one of whom shall be from the East, and one of whom shall be from the West or mid-West.

b. Without in any way limiting the powers conferred by law upon the Board of Trustees, the Board between meetings of the Society shall have the following powers:

It shall have power to authorize the expenditure of money for the conduct of the annual meetings, for the printing and mailing of notices and programs therefor, for the publication of the Journal, for the necessary stationery, postage and secretarial expenses incident to these purposes and for such other objects as may be neces-

sary and proper for the conduct of the Society's affairs.

It shall have power to fill vacancies in its own body until the next annual meeting of the Society.

It shall have power to make and amend rules for its own procedures. It shall keep record of such rules.

It shall have the power to confer with such other organizations as seem fit in order to lay out plans for cooperating committees.

If at any annual meeting the Society does not set the time and place for the next annual meeting it shall decide such time and place.

The Board of Trustees shall cooperate with the Program Committee in making arrangements for the annual meeting or, in the absence of a Program Committee, it shall itself make such arrangements.

The Board of Trustees shall take such steps as may be necessary to carry out any program determined by vote of the Society and not otherwise provided for and generally conduct the affairs of the Society when it is not in session.

The Representatives at Large shall be elected in the manner specified herein for the election of officers. They shall serve for terms of two years and until the election of their successors, the Representatives from the East to be elected in even numbered years and the Representatives from the West in odd years. Vacancies occurring before the expiration of the term of office of a Representative at Large shall be filled by the Board of Trustees until the next annual election of officers.

SECTION 3. The Board of Trustees shall meet at least three times a year. The first meeting shall follow immediately after the annual meeting of the Society and the last meeting shall be held before the annual meeting of the Society in the following year. One meeting will be held approximately midway between the first and the last meeting as nearly as may be convenient and practicable. Special meetings may be called at the instance of the President or of five members of the Board.

SECTION 4. Five shall constitute a quorum of the Board but the concurrent vote of four members shall be necessary to constitute action by the Board.

SECTION 5. The Chairmen of the Standing Committees shall receive notice of and shall be privileged to attend Board meetings and may take part in the discussions had at the meetings but shall have no vote. At such meetings as the President may deem the presence of a Committee Chairman necessary for the proper despatch of the business of the Board, his attendance at such meeting shall be facilitated by the Society to the extent that the resources of the Society reasonably permit.

ARTICLE V. *Committees*

SECTION 1. Appointments to Standing Committees shall be of three (3) years duration and each Standing Committee shall have at least six (6) members, except in the cases of the Finance and Regional Committees, divided as nearly as may be, into three classes with expiration dates occurring annually in rotation.

SECTION 2. The Standing Committees shall be:

a. *The Editorial Committee*: This Committee shall determine the editorial policy of the Journal of the Society.

b. *The Membership Committee*: This Committee shall pass upon the qualifications of applicants for membership in the Society. They may from time to time, subject to the approval of the Board of Trustees, establish such appropriate requisites, rules and practices, including but not limited to the adoption of application and sponsorship forms, as may be calculated to assume adequate maintenance of the standards herein specified respectively for Fellow, Associate, Affiliate, and Student Affiliate.

c. *The Research Committee*: This Committee shall encourage and foster research activities in the projective methods.

d. *The Finance Committee*: This Committee shall concern itself and be acquainted with the financial affairs and condition of the Society at all times; shall cooperate with the Treasurer in the preparation of an annual budget; and shall periodically audit the Treasurer's accounts. The Executive Editor shall be an ex-officio member of this committee. It shall consist of at least three (3) members in addition to the Executive Editor.

e. *The Committee on Regional Divisions*: This committee shall encourage and foster the formation of local divisions of the Society, and shall, so far as may be, represent their geographical interests within the National organization. It shall consist of one representative of each region, who shall reside within the region. These representatives shall be known as Regional Representatives. This Committee may have such additional members as the President may from time to time appoint.

f. *The Committee on Professional Ethics*: This Committee shall from time to time formulate standards of principles of professional conduct for adoption by the Society. It shall have the power, but shall not be obliged to render opinions subject to the approval by the Board of Trustees on such questions of professional conduct as may from time to time be submitted to it by the members. It shall act upon complaints against a member in accordance with such code or rules or procedure as the Board of Trustees may from time to time prescribe. It may correspond with like committees of other professional societies on matters of common interest within the framework of its general objectives, purposes or powers.

g. *The Training Committee*: This Committee shall encourage and assist in the provision of training facilities where needed and shall evaluate and render such assistance, if any, as it may deem appropriate in the improvement of existing training facilities.

h. *The Program Committee*: This Committee shall arrange and supervise the program of the Society at its annual meeting. The Chairman of this Committee shall be the President Elect.

SECTION 3. *An Advisory Committee* shall be appointed by the Board of Trustees. This Committee shall consist of physicians, psychologists, and/or other individuals not necessarily members, but with whom consultation would be of value to the Society, except that its chairman shall be a member and shall be designated by the Board of Trustees.

The Chairman of the Advisory Committee in addition to acting as Chairman of such Committee, shall generally consult and advise with other elected officers in all matters, especially in activities having to do with training, and encouraging and assisting in the development of projective techniques and their application.

SECTION 4. There shall be a Nominating Committee and there may be other committees, these all to be appointed by the President, as provided in Article III, Section 4 (a).

ARTICLE VI. *Meetings*

SECTION 1. An annual meeting of the membership for the purpose of conducting a scientific assembly and transacting the business of the Society, shall be held at such time and place as may be determined by majority vote of the members present at a business session of the next preceding meeting, or, in case of failure so to do by the Executive Committee. Notices of the annual meeting shall be sent to all members at least four weeks before the date of the meeting.

SECTION 2. At each session at said meeting, the President, the Vice President, or some member delegated by

the President shall preside, and keep the readers of papers within their allotted periods and discussants within such limits as the presiding officer may determine. The time allotted to any reader or discusser may be extended by vote of the members present at a session.

SECTION 3. Persons not members of the Society may be invited to attend sessions of the scientific program, and may be accorded the privilege of presenting papers and of discussing papers presented. The Executive Committee may provide for one or more scientific sessions which shall be closed to non-members.

SECTION 4. Only Associates and Fellows shall have a right to vote.

SECTION 5. Voting may be by mail, by voice, or by such other methods as the presiding officer may determine or as the members present at any meeting may decide by majority vote.

SECTION 6. Special meetings of the members may be called by concurrent vote of at least five members of the Board of Trustees on such reasonable notice as the Board of Trustees may fix.

ARTICLE VII. *Quorum*

SECTION 1. At any annual meeting of the Society, 10 per cent of the number of voting members in good standing at the close of the next preceding annual meeting shall constitute a quorum for the transaction of business.

ARTICLE VIII. *Regional Divisions*

SECTION 1. Regional Divisions of the Society may be established, modified, consolidated, divided or disestablished as the Executive Committee may from time to time prescribe and determine. Local bodies within each region, to be known as chapters, may be formed and may function from time to time within the several regions subject to the approval of the Executive Committee.

SECTION 2. Each region shall have a resident regional representative, who shall be a member of the Executive Committee.

SECTION 3. When a chapter has been formed all members of the Society who are located in or near the locality in which the chapter functions shall be ipso facto members of the chapter. Other persons wishing to become members of the chapter shall make application to become members of the Society in the way prescribed by these by-laws. When admitted to membership in the Society they shall become ipso facto members of the chapter in which they are located. Annual dues of such members shall be payable to the Treasurer of the Society.

SECTION 4. Each chapter shall have complete local autonomy, electing its own officers, setting the times and places of its own meetings, arranging its own programs, conducting its meetings according to its own rules of procedure, inviting such speakers and auditors as it may choose, and cooperating with other chapters as it may determine. All expenses of its meetings shall be met by its own chapter members.

SECTION 5. The Secretary of each chapter shall send notices and reports of each of its meetings to the Secretary of this Society.

SECTION 6. It shall be the duty of the Regional Representative, among other things, to facilitate liaison with, and cooperation among, chapters within his region and between chapters within his region and the National Organization.

ARTICLE IX. *Publications*

SECTION 1. The Society shall publish a scientific journal, which journal shall also record the proceedings of the Society together with any other matter that shall seem to fit to the Editorial Board.

SECTION 2. The Editorial Board shall consist of the Editorial Committee.

SECTION 3. Such journal shall be distributed to all members of the Society and to all subscribers who are not members, at such rate as the Executive Committee may from time to time determine.

SECTION 4. All papers read at the annual meeting must be submitted to the Editorial Board for publication in the Journal if the Editorial Board deems fit.

SECTION 5. Other authorized publications may be issued from time to time at the discretion of the Editorial Board.

ARTICLE X. *Finance*

SECTION 1. The Society shall be empowered to receive, hold and invest funds and to disburse sums therefrom in payment of indebtedness lawfully incurred on behalf of the Society.

SECTION 2. The fiscal year, for all purposes of the Society, shall coincide with the calendar year.

SECTION 3. The Secretary, and the Treasurer, and the Editor and the Executive Editor of the Journal shall be allowed expenses for postage and secretarial work in connection with their offices. Other expenses may be authorized by the Executive Committee.

SECTION 4. Annual dues shall be required of all members, except honorary members, and shall be payable at the beginning of each year. Newly elected members whose election shall take place prior to June 30th shall pay dues for the year beginning January 1st preceding their election and shall receive the Journal for that year. Newly elected members whose election shall take place after June 30th shall have the option of paying dues for the entire year and receiving the Journal for that year, or of commencing payment of their dues on the following January 1st.

SECTION 5. Annual dues of fellows shall be twelve dollars ($12) per year, and annual dues of other members except honorary shall be seven and a half dollars ($7.50) per year, which shall include subscription to the Journal at six dollars ($6.00) per year. In the assessment of the first year's dues, a newly-elected member who has already subscribed to the Journal for that year shall be given credit for the amount of his Journal subscription.

SECTION 6. Members in arrears for dues more than one year shall be automatically suspended and shall not receive the Journal unless special action is taken by the Executive Committee to continue their membership. Failure to pay dues after suspension for a year shall result in automatic cancellation of membership.

ARTICLE XI. *Amendments*

SECTION 1. Amendments to the Bylaws may be proposed in either of the following ways:

(a) by resolution of the Board of Trustees,

(b) by majority vote of the Members present at any Business Meeting of the Society.

SECTION 2. Amendments to the Bylaws shall be made by mail ballot as follows: An appropriate communication indicating both the matter proposed to be deleted and added and also, if the Board of Trustees deems it necessary, a brief statement of the purposes of the change, shall be mailed to all members, together with a ballot to be returned to the Society. The Amendments shall be deemed adopted if approved by two-thirds of those voting, whose ballots have been returned within 30 days after the date of mailing, provided that the total ballots returned within the said 30 days have been at least equal to 20% of the members entitled to vote at a Business Meeting. Amendments shall be effective when and as adopted unless otherwise specified in the communication to the members proposing the amendment.

COMMITTEE MEMBERSHIP SOCIETY FOR PROJECTIVE TECHNIQUES

Arrangements Committee

(To be appointed)

Editorial Committee

Bruno Klopfer, *Editor*
Bertram R. Forer, *Executive Editor*
Theodora M. Abel
Dorothy V. Anderson
Susan Deri
Florence Diamond
Herbert C. Goldenberg
Marguerite R. Hertz
Robert R. Holt
Walther Joel
Lois B. Murphy
Leonard B. Olinger
Jeanne Reitzell
Edwin S. Shneidman
L. Joseph Stone
Pauline Vorhaus
John Weir
Irla Lee Zimmerman

Ethics Committee

Edward J. Shoben, *Chairman*
Leopold Bellak
Robert R. Holt
Alvis W. Jeffreys, Jr.
L. Joseph Stone
David Vorhaus
Austin B. Wood

Finance Committee

Gertrude Gillenson Brody, *Chairman*
Samuel Baron
Mildred R. Bernstein
Harry V. McNeill

International Committee

William E. Henry, *Chairman*
Theodora M. Abel
Theodora Alcock
Marjorie Carson
Abraham Elizur
Marguerite R. Hertz
Zygmunt A. Piotrowski

Membership Committee

Esther Katz Rosen, *Chairman*
Arthur Burton
Herbert Dörken, Jr.
William E. Henry
Walter G. Klopfer
Gertha Williams

Nominations Committee

Samuel B. Kutash, *Chairman*
John E. Bell
Edward M. L. Burchard
Herbert Dörken, Jr.
Austin Foster
Marguerite R. Hertz
Mortimer M. Meyer

Policy and Public Relations Committee

Harry V. McNeill, *Chairman*
John E. Bell
Zygmunt A. Piotrowski
L. Joseph Stone
Austin B. Wood

Program Committee

Jules D. Holzberg, *Chairman*
Robert E. Harris
Ethelyn H. Klatskin
Mortimer M. Meyer
George Muench
Lois B. Murphy
Frederick Wyatt

Regional Committee

Herbert Dörken, Jr., *Chairman*
Edward G. Billings
Arthur Burton
Austin Foster
Robert M. Hughes
Ernest G. Poser
Johanna K. Tabin
Roy M. Whitman
Henrietta Woolf

Research Committee

Zygmunt A. Piotrowski, *Chairman*
Leonard S. Abramson
Leopold Bellak
Henry P. David
Herman Feifel
Frederick J. Gaudet
Robert G. Gibby

Training Committee

Walter Kass, *Chairman*
Herman Feifel
Reuben Fine
Reuben S. Horlick
Leonard Krasner

Kathleen Lolis
Franklin R. McDonald
Joseph Newman
Helen D. Sargent
Earl S. Taulbee
Gertha Williams
M. Erik Wright

REPORT ON HACKBUSCH MEMORIAL INTERNATIONAL FUND

The first announcement of the establishment of the Florentine Hackbusch Memorial International Fund appeared in the June 1953 issue of this Journal. In order to facilitate an effective distribution of the gift subscriptions, the chairman of the ad hoc committee informed the appropriate office of UNESCO of the newly-established fund. Through the generous cooperation of the UNESCO office, the information was systematically channeled through all interested institutions. Within six months following this announcement, the Society received 55 applications from institutions in 22 different countries.

Unfortunately, this prompt and strong response from the applicants was not immediately accompanied by a corresponding response from the members of the Society and the readers of the Journal. After careful study of the available applications, taking into consideration relative financial resources and intensity of interest in projective techniques, the Board of Trustees of the Society decided at its meeting of February 27, 1955, to recommend a voluntary assessment of $5 a year for all board members in order to fulfill the intentions of the memorial fund without an undue strain to the Society's finances. Three more such voluntary assessments were immediately contributed by other members of the Society present at the meeting.

Institutions in the following countries were included in the first selection of gift subscriptions, beginning with the current volume of the Journal: Germany, Great Britain, India, Indonesia, Iran, Israel, Italy, South Africa and Turkey.

1955 ANNUAL WORKSHOP IN PROJECTIVE DRAWINGS

The 1955 Annual Workshop in Projective Drawings will be conducted at New York State Psychiatric Institute, New York City, this year by Emanuel F. Hammer, Ph.D., and Selma Landisberg, M.A., on July 18-21, from 9:30-12:00 and 1:30-3:00 daily. The workshop will provide a grounding in fundamentals and then go on to advanced considerations of differential diagnosis, psychodynamic appraisal, anxiety, the individual's psychological resources as treatment potentials, and the use of projective drawings in therapy. In addition to Buck's H-T-P Technique and Machover's Draw-A-Person Test, the workshop will include the Draw-A-Family procedure, Harrower's Unpleasant Concept Test, Kinget's Drawing Completion Test, the Draw-A-Person-in-the-Rain modification of Abrams which attempts to elicit clues to the self-concept under conditions of environmental stress, Schwartz's Draw-An-Animal concept useful for disclosing the biological side of the bio-social coin, Calligor's Eight-Card Drawing Test which frequently digs down into the deepest layers of the subject's psychosexual identification, and free doodles.

For information as to admission, fees or requirements, write to Dr. Hammer, 210 Riverside Drive, New York 25, N. Y. Enrollment arrangements must be completed by July 15.

The following manuscripts have been accepted for publication as of April 30, 1955:

Barker, G. B.	A Rorschach study of a schizophrenic at four stages of his illness.
Datel, W. E. and Gengerelli, J. A.	Reliability of Rorschach interpretations.
David, H. P.	Brief, unstructured items: The projective question.
Dörken, H., Jr.	The Mosaic Test: Second review.
Eckhardt, W.	An experimental and theoretical analysis of movement and vista responses.
Fine, R.	A scoring scheme for the TAT and other verbal projective techniques.
Gottschalk, L. A. and Hambidge, G., Jr.	Verbal behavior analysis: A systematic approach to the problem of quantifying psychologic processes.
Hertz, M. R. and Loehrke, L. M.	An evaluation of the Rorschach method for the study of brain injury.
Kagan, J.	Psychological study of a school phobia in one of a pair of identical twins.
Kahn, T. C.	Personality projection in culturally structured symbols.
Light, B. H. and Amick, J. H.	Rorschach responses of normal aged.
Machover, K.	The body image in art communication as seen in William Steig's drawings.
Shatin, L.	Relationships between the Rorschach test and the Thematic Apperception Test.
Spiegelman, M.	Effects of personality on the perception of a motion picture.
Spiegelman, M.	Evaluation of personality by viewing a motion picture.
Symonds, P.	Use of the Rorschach in the diagnosis of teacher effectiveness.
Winter, W. D.	Two personality patterns in peptic ulcer patients.